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DIESEL RAILWAY TRACTION

A Supplement illustrating and describing developments in Diesel Railway Traction is presented with each copy of this week's issue.

Improving Cross-Country Journeys

PERSONS used to straightforward main line journeys cannot realise the dilatoriness of many cross-country journeys in this country until circumstances compel them to undertake one. A study of the timetables will reveal how little improvement in this respect has taken place since the advent of the motor car and coach, and even by the use of the latter, which is a slow mode of conveyance for any appreciable distance, the average cross-country trip is a tiresome affair. We have had our share of such journeys and can therefore all the better appreciate the enterprise of those railways which are doing something to improve matters. The Great Western, as we announce in our *Diesel Railway Traction Supplement* this week, is to institute a service of fast railcars between Cardiff and Birmingham, beginning on July 9, when the summer timetables come into operation. These cars will provide facilities additional to those already existing, and besides the mere conveyance of passengers they will be so equipped with refreshment arrangements and other comforts as to provide really pleasant journeys. Here, then, is a field for exploitation by economical units such as light railcars, a field whose soil is too light to be ploughed by the orthodox train, but one wide enough to employ profitably hundreds of units such as the Great Western is acquiring.

Metropolitan Line Rating

The Railway Assessment Authority has now settled, and circulated to the London Passenger Transport Board and the local authorities concerned, a draft of that part of the first railway valuation roll made under the Railways (Valuation for Rating) Act, 1930, and section 92 of the London Passenger Transport Act, 1933, which relates to the late Metropolitan Railway (now merged in London Transport). The draft roll now published shows that the average net receipts of the board's Metropolitan undertaking for the accounting years 1928 and 1929, as proposed to be fixed by the Authority, are £677,951, and that the proposed net annual value of the undertaking as a whole is £336,000. The approximate comparable total of the present rating assessments of the undertaking is £157,000. In the draft roll are also shown the proposed distribution of the total net annual value of £336,000 among all the hereditaments which are (a) occupied by the board for the purposes of its Metropolitan undertaking, and (b) would, if the board were a railway company within the Act of 1930, be "railway hereditaments" within that Act. (For example, the hereditaments concerned include the board's share of properties occupied jointly by, or on behalf of, the board and the main line companies—e.g., the Metropolitan and Great Central Joint line, but exclude refreshment rooms and dwelling houses and premises—e.g., shops—so let out as to be capable of separate assessment.) The amounts allocated in the aggregate to each administrative county on the system are: Buckingham, £13,923; Hertfordshire, £5,134; London, £202,533, and Middlesex, £114,410; totalling £336,000.

* * * *

The Week's Traffics

For the past week the traffic returns of the four amalgamated companies compare with a week in 1933 which included the Whitsun Monday receipts. In the accompanying table, therefore, the passenger train takings are substantially down, and goods and coal receipts are substantially up. Irish railway traffics for the week ended June 8 go against a week in 1933 which included the Whitsuntide holiday takings for Saturday, Sunday and Monday. Belfast & County Down and Great Northern receipts for the week are slightly down under both headings, but the Great Southern with a decrease of £4,085 in passenger receipts has an increase of £6,175 in goods.

	23rd Week				Inc. or dec.	
	Pass	&c.	Goods, &c.	Coal, &c.	Total	Year to date
L.M.S.R. ..	84,000	—	112,000	60,000	88,000	+ 1,308,000 + 5.46
L.N.E.R. ..	71,000	—	41,000	56,000	26,000	+ 1,372,000 + 7.93
G.W.R. ..	34,000	—	50,000	32,000	48,000	+ 385,000 + 3.84
S.R. ...	27,000	—	13,000	7,000	7,000	+ 185,000 + 2.34

London Transport traffics for the past week were £550,600, the takings for the 49 weeks of the current financial year being £24,872,600.

* * * *

The Twenty-Four Hour Clock

The twenty-four hour clock experiment which the B.B.C. is carrying out recalls efforts made by railway companies in the past to assist their patrons in distinguishing between morning and afternoon times. On January 1, 1865, the old L.N.W.R. issued a time-table which made a bid to solve the problem. The hours from mid-day to midnight were distinguished from the morning times by a thin line drawn vertically between the numbers, thus: "12 | 5." The main trouble with the new scheme was that, since all times after mid-day had to have the extra stroke, the spacing of the numerals suffered badly, and the time-table proved difficult to read. A further drawback was that times such as 1.11 and 11.1 were (owing to the line) easily mistaken for 11.11. The system,

therefore, was abandoned after a short trial. Some time later, however, a timetable using the twenty-four hour system was introduced. The experiment roused instant opposition. Passengers wrote saying that "to speak of the Irish Mail leaving such and such a place at 19.00 was extremely absurd and confusing." Public opinion won the day, and the project was abandoned. Ultimately the L.N.W.R. hit on the idea of using dark, or bold, figures for the dark hours. That is, all times after 6 p.m. were printed in heavy type, while those which referred to the light hours of the day were printed in ordinary light type. This method of distinguishing between a.m. and p.m. met with more success than did its predecessors. A modification of the original L.N.W.R. system, which was later adopted by the Midland, survives to-day in the current L.M.S. timetables, where all p.m. times are indicated by a thin line between the hours and minutes figures. The objections previously raised are now solved by printing the actual times in a heavy or bold type.

* * *

Overseas Railway Traffic

The Buenos Ayres & Pacific has within the last fortnight succeeded in converting its aggregate traffic decrease of £1,000 into an increase of £34,000 for the first 49 weeks of the current financial year. In the same period the Central Argentine has reduced its aggregate traffic decrease from £576,000 to £501,000, but the Buenos Ayres Western has gone back slightly, its decrease for the year to date being now £12,000, against £8,000 a fortnight ago. The Buenos Ayres Great Southern decrease has also advanced from £161,000 to £175,000. Canadian Pacific traffic increases have continued to the extent of £112,600 during the past two weeks, and the Bombay, Baroda & Central India now records an improvement of £45,825, as compared with £9,975 a fortnight ago.

Railway.	No. of Weekly Week. Traffic.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
Buenos Ayres & Pacific ..	49th 122,000	+ 20,000	5,479,000	+ 34,000
Buenos Ayres Great Southern ..	49th 187,000	- 5,000	9,858,000	- 175,000
Buenos Ayres Western ..	49th 63,000	- 7,000	3,337,000	- 12,000
Central Argentine ..	49th 209,000	+ 41,000	8,330,000	- 501,000
Canadian Pacific ..	22nd 426,200	+ 16,200	9,866,400	+ 1,399,400
Bombay, Baroda & Central India	9th 175,050	+ 8,925	1,553,850	+ 45,825

* * *

The Evening Excursion

Evening excursions to seaside resorts earned their popularity in the provinces, and have this summer been introduced to Londoners. No longer shall we be able to sympathise with the cynicism of the cockney schoolboy who, one stuffy afternoon in August, parried his teacher's remark that London is the largest port in the world with a curt, "you're telling me." Now that Southend and Brighton are so readily accessible between tea and bedtime there will be no excuse for forgetting that we live on an island and that the city is really next door to the sea. Corresponding facilities are being extended all over the country. Bolton, Manchester and Preston have cheap evening bookings to Blackpool, the fare from Preston being only one shilling. An equally cheap excursion is available from Exeter to Exmouth, and many other provincial centres are similarly blessed. Curiously enough the lowest fares of all are found in Scotland. The L.M.S.R. has followed the example, set last year by the Southern Railway, and introduced railway cruises through local beauty spots from several midland cities. The trains run at reduced speed at certain points to enable the passengers to appreciate the scenery, and the rolling stock is chosen to make observation easy and pleasant. The public has shown its appreciation of railway enterprise both by its patronage and its bestowal of popular nicknames. We already know of a Woolworth train. It is up to the companies to steer clear of a Penny Dreadful.

Late Running Rewarded

A happy solution to the problem of penalising the laggard engine driver is reported from Cheliabinsk, U.S.S.R. On a recent date a certain comrade Anisimoff arrived here forty minutes late with his train from Kurgan. By so doing he incurred a fine of 9 roubles 12 kopecks, which was imposed by the official guardian of punctuality in the person of Tanaelova, a woman employee at the depôt. It would appear that Tanaelova might well have accompanied her verdict with the stale old capitalist protestation that this hurt her more than it did Anisimoff, for no sooner had that dilatory engineer been dismissed than he met Hijenkova, another proletarian Portia employed at Cheliabinsk. Hijenkova at once nullified her learned colleague's verdict by rewarding Anisimoff, his fireman, and the guard of the train with a premium of 21 roubles 12 kopecks in recognition of the fuel economies their unhurried progress had effected. This system of rewards and punishments is said to be in force at hundreds of termini throughout Russia, where it no doubt gives every satisfaction to the staff. A skilful driver can always be sure of earning a premium twice as substantial as his fine, and, while the railway is able to express its displeasure at indifferent work, it is safe from the charge of victimisation of its employees.

* * *

London Events

For the weary worker who, after a hard day's toil, has to stand and be jostled in a tube train all the way from Charing Cross to Golders Green, there is now at least one consolation. In its wisdom the London Passenger Transport Board has recently extended considerably the scope of the small but irresistibly charming bills which announce pictorially current London events. Of recent weeks, while alternately rebounding from "mother of six" on one side and pulverising "man in the street" on the other, Londoners have been able to comfort themselves in mind, if not in body, by admiring these delightful bills, which come and go as the London season pursues its hectic whirl. The obvious subtlety of the joke in which the Lion and the Kangaroo found so much to revel in while crouching behind their stumps must have made millions of Londoners shamefully inquisitive, while the glamour of the "Trooping of the Colour" and the A. P. Herbertism of "Derby Day" were equally intriguing. More demure, but no less pleasing, was the sedateness of "Chestnut Sunday," suitably expressed by a group, toned with filial and sororal regard, set beneath a spreading chestnut tree heavily laden with giant candle-like blossoms. London events pass thick and fast; may London Transport continue, as at present, to "keep time and tune" with them.

* * *

The Egyptian Locomotive Position

Some interesting facts relating to the locomotive position on the Egyptian State Railways were disclosed in the debate preparatory to the final passing of the Railways Budget by the Egyptian Parliament on May 28. This position, which the Budget seeks to improve by the purchase of thirty engines this year, was ably stated by the Minister of Communications. It appears that the principle adopted last year of increasing the number of trains and reducing rates has been quite successful. Figures showed that 614,000 more tons of goods and 2,300,000 more passengers had been carried, and that the train kilometrage had increased by 523,000 km. over the corresponding figures for the previous year. But in order to carry out this change in principle, it had been necessary to call into use locomotives more than thirty-five

years old that had been laid up for some considerable time. The Minister stated that these old engines had needed heavy repair to make them fit for service, and that this had congested the shops. Apart from other considerations, it was considered uneconomical to continue to spend money on such old engines, and it had been decided that, in order to maintain a reasonable average age, and maximum life, of its locomotive stock, the E.S.R. ought normally to buy twenty engines a year. In view of the financial crisis, however, no purchases had been made for the last three years, and the present position was now so serious that it was proposed to buy thirty locomotives.

* * * *

A Mistake in Block Working

A recent mistake in block working on a South German section of the Reichsbahn illustrates how the failure of a piece of apparatus can mislead a signalman, especially when a doubt comes into his mind regarding what he has done. Two trains were admitted to a block section in the following circumstances. After the arrival of the first train the signalman accepted the second and duly pulled off his signals for it to come into the station on another line. The plunger lock apparatus had, as was afterwards discovered, developed a fault and failed to relock itself when the acceptance was sent. Noticing the "free" indication a little later, the man began to doubt if he had given *out of section* for the first train, so he telephoned to the block post in rear to inquire, but expressed himself so confusedly that his colleague believed him to be referring to the second train and, quite correctly, said he had not yet received such a signal for it. A message to the box in advance was similarly misinterpreted and the man became confirmed in his delusion. Replacing his signals, he plunged the block again and the third train ran into the second one while it was stopped by the signals which had been irregularly reversed. One moral of this accident is that although the telephone is a valuable help in railway working, indistinct messages can be a real danger.

* * * *

A New Use for Railways

Speaking in London the other day, Dr. Leslie Burgin, Parliamentary Secretary to the Board of Trade, made the suggestion that the railways might be used for the conveyance of essential public utility services, such as electric cables, gas, and water pipes. He had been struck with the greater safety of anything alongside the railway, and as he was speaking to members of the iron and steel industry, he suggested that electric cables might be carried in steel troughs along the lines. This is a suggested practice which would have obvious advantages but the difficulties of which should not be overlooked. On electrified railways, where a great deal of cable work has to be laid alongside the track, a certain amount of difficulty is encountered in providing for adequate drainage of the permanent way. In complicated locations where space and clearance are restricted, the expense of carrying out Dr. Burgin's suggestion might eliminate the benefits, but there must be many railways in various parts of the country where housing, industrial, and other developments require the extension of essential services which might be carried out in the manner suggested.

* * * *

Controlling Axlebox Movement

A recent issue of our American contemporary the *Railway Age* gave illustrated particulars of an automatic compensator and snubber for locomotive driving wheel axleboxes. It is pointed out that in the modern locomotive, despite increases in weight and power, the design of driving boxes and the means of retaining them in align-

ment have in general changed very little from those obtaining with much lighter engines many years ago. The usual arrangement of a parallel faced shoe and adjustable wedge provides for the necessary vertical movement of the box while the locomotive is in operation, and the horizontal stresses transmitted by the coupling rods are reversed twice for each revolution of the driving wheels, the driving box being forced against the shoe as the piston travels forward and against the wedge as it returns. In order to overcome these and other difficulties, an automatic compensator and snubber for driving boxes has been developed by a well known American concern. A tapered wedge is arranged to take up wear automatically through the medium of an adjusting bolt controlled by a compensating spring. The snubber consists of a large outer spring, preloaded or locked up under compression. The compensating spring more than carries the weight of the compensator and holds it in position without any clearance on either side of the box. The arrangement is found to maintain automatically free driving box movement without shoe or wedge clearance.

* * * *

The Express Locomotive of the Future

Those upon whom falls the responsibility of planning for the future of the railways must try to anticipate what traction problems will have to be faced a decade or two hence. They must venture upon an intelligent forecast of how much further the development of the steam locomotive can be carried, and arrive at some conclusion regarding the relative claims of steam, electric, and diesel traction, the development of airways and the competition of the road. Confident pronouncements are sometimes made, particularly in after-dinner speeches, that the steam locomotive is good for many years to come. To that view in general, most competent persons will subscribe. As to whether the steam engine will retain its present reciprocating form, however, is another matter, and if this were put to the vote it might be found that generous support was forthcoming for the turbine, or the high-speed steam engine with gear drive to the axles and supplied with steam from a separately carried boiler of increased dimensions. If the present system of cylinders and rods is to prevail, there would appear to be a strong case for the wider application of the articulated locomotive, in which increased cylinder and boiler power are secured at the same time as greatly improved distribution of weight.

* * * *

Fixing Tyres on Wheel Centres

An unusual number of wheel failures on an American railway due to cracked spokes and fracture of the wheel centre itself were traced to excessive heating of the wheel during the application of the tyres. Investigation disclosed that insufficient care and thought were given to the matter by those concerned, and that frequently the workmen occupied themselves with another job until they judged that the tyre had been heated sufficiently to permit of its application to the wheel centre. As a consequence, the wheel centre was usually excessively heated and damage was done to the spokes and other parts of the wheel during the shrinkage of the tyre. Experience has shown that if care is exercised in seeing that only the tyre itself is heated, there is no danger of damaging the wheel centre. In the case referred to, however, it has been considered advisable to discontinue the practice of applying the tyre to the wheel during the expanding process, and dummy wheel centres of suitable sizes have been installed to carry the tyres during the heating. When sufficient expansion is secured, the tyres are transferred to the actual wheel centres of the locomotive.

The Institute of Transport Congress

LAST week we remarked upon the unique function performed by the Institute of Transport in providing a common ground for those concerned with all forms of transportation and every department of each form. The congress at Leeds, a most efficiently organised affair which ran on oiled wheels under the capable and genial presidency of Mr. William Whitelaw, demonstrated how well this function is performed. Two of the papers presented were abstracted in our last issue; the third will be found summarised this week on page 1067, followed by a summary of the discussions on all three papers. No one who read these papers and listened to the discussions of them could fail to come away without a better idea of the points of view of those concerned in phases of the transport business other than his own. Both providers and users of transport aired their opinions, as well as those who provide their own transport for their own special purposes. Predominating everything was the fact that more transport is available, and even more potentially available, than is required at the present time, and it was round this fact that most of the discussion centred. For some time past action has tended along the lines that transport facilities are definitely in excess of need, which is not perhaps untrue at the present time. But it is dangerous to concentrate on the elimination of channels that cannot be filled at the moment. There are two possible circumstances that might arise to change completely the present conditions, and either might come about with too little warning to obviate serious congestion of existing services. These are war or a great expansion of public spending power, and the former, indeed, would imply the latter. We have had fifteen years of "peace," but those who have not forgotten the last war can perhaps visualise what would happen to our existing transport agencies if we were suddenly involved in another. Immediate industrial re-awakening would inevitably occur upon the outbreak of a war between industrialised nations, even if, at first, our own was not involved. The other factor which would have the same effect, but without the same dire consequences of war, would be a consolidation of the peace by such an increase of spending power as should enable the peoples of industrialised countries to buy the goods which a potentially abundant productive system (*pace* Professor Jones of Leeds), could readily supply. May we not look forward to the presentation of a paper or papers to the Institute of Transport discussing how transport facilities could be most rapidly increased to meet such emergency demands?

The L.N.E.R. Cruising Train

THE London & North Eastern Railway is repeating its interesting experiment of last year and is running this month four seven-day "train cruises" with its fourteen-coach train the Northern Belle. Details of the train and its itinerary are given on p. 1063. We understand that the conception of this novel enterprise originated with Sir Ralph Wedgwood more as a gesture to call attention to the facilities afforded by British railways for seeing the country than merely as a profit-earning enterprise. Be that as it may, the four cruises which are being run this year will have brought the company a gross revenue of £4,800, which it would never have received but for them. The L.N.E.R. officers and staff have co-operated in the enterprise with an enthusiasm that has justly earned the approbation of all the passengers who have been fortunate enough to tour some of the most beautiful districts in the north of England and Scotland in this perambulating hotel. The only criticism we heard from the passengers was that the £20 charged for this week of luxurious first class travel

was not enough! But that is a matter that can be easily remedied if it is decided to make the train cruise a permanent feature of the travel facilities afforded by the L.N.E.R. Besides *en pension* accommodation equal to that given on a first class liner, the week's tour includes some 2,000 miles of travel by train, motor coach and steamer. To appreciate the amount of detailed forethought necessary on the part of the railway's operating, mechanical, and civil engineering departments, it is necessary to study the "working-notice." On the first cruise this season everything worked without the slightest hitch, and judging from the attention to detail expended on this experiment, there is no reason to doubt that the remaining train cruises will be equally successful. Were it possible to spare the stock, and were it possible to stable the train at the appointed stopping places in the busy holiday months of July, August, and September, we believe that the advertising necessary to fill the four train cruises run this year would fill the 60 berths available every week from the beginning of June to the end of September. As it is, only 240 fortunate individuals can be accommodated on the four cruises. Of these, it is interesting to note, a number are visitors from overseas who have had the perspicacity to avail themselves of this unique opportunity of "exploring" a strange country under the most luxurious conditions. But granted the success of the L.N.E.R. Northern Belle train cruises from the passengers' standpoint, it does not follow that each and every railway could successfully imitate them. The L.N.E.R. is fortunate in possessing a sufficiency of really luxurious rolling stock for day and night travel that can be spared for use in a cruising train in the month of June. To build a train specially for such work at cost of, say, £70,000 would be quite another matter. Then the railway, apart from the attractions of the districts visited, must have a sufficiency of scenic routes, and in this respect the L.N.E.R. is particularly fortunate.

The Camden Collision

THE Ministry of Transport accident report summarised on another page, relates to a collision which, had the trains concerned not been almost empty, might have had very serious results. During an unusually dense fog, when drivers had a visibility of only about three yards and one of them not only could not see the signal at which he was standing but failed to see the fogman, an electrically-operated train on the up slow line at Camden No. 1 box was unintentionally delayed at the starting signal for that line and, while there, was run into by a following electric train. The hour was between 6 and 7 in the evening and both trains were lightly loaded; moreover, by good fortune the two vehicles of the second train that suffered the most in the collision were practically empty. What led to the accident is soon told. The primary cause was the density of the fog, which contributed, first, to the motorman of the leading train "crawling along" from Camden No. 1 box to the starting signal, and, secondly, to the signalman, after allowing the train five or six minutes to pass the starting signal, restoring it prematurely, so that the train came to a stand at the signal, of which fact the signalman was unaware. Confused telephonic inquiries as to the whereabouts of that train led to its being irregularly cleared, and the following train accepted and No. 1 signals lowered for it while the first train was still in the section. As has so often occurred before, the collision would not have happened had certain factors been present. The signalman at Camden had the security of track circuit on the up fast line but not on the adjoining up slow line—that deficiency has since been removed—and had there been a fireman's

call-box or a telephone at the starting signal, No. 1 box would have been advised that the train was waiting there and not, as the signalman thought, on its way to Euston. Further, the provision of fog-repeaters for the starting signals would have made the fogman's task easier, quicker and safer, and would not have necessitated his having to climb the signals to see the condition of the arms, as he had been doing during the previous two hours. Here we would remark that Colonel Mount in his report commends the motorman and the guard of the second train for acting with coolness and promptitude. The guard of the first train, it seems to us, ran some risk when going back to No. 1 box to protect his train. The man had to traverse some 250 yards over the ballast in the densest fog, and, when on his way, the 2.15 express from Liverpool passed him on the up fast and the second electric on the adjoining up slow at the same time. The man threw himself down in the six-foot way between the trains and, after the collision—which apparently occurred while he was on the ground—he went on to the signal-box.

It is obvious that both the signalmen concerned were to blame for the collision. The man in Euston No. 4 was the more at fault, as he irregularly changed his block indication for the first train from *train on line* to *line blocked* and then gave *line clear* for the second train without any attempt to clear up the confusion as to the whereabouts of the first train or telling No. 1 what he was going to do. The latter man was at a disadvantage of no track circuit indication for the slow line, but he should have waited for *train-out-of-section* from No. 4 box before restoring his starting signal and, moreover, should have had his suspicions aroused by the telephonic conversation. It is due to signalmen in general that we should put upon record the fact that very rarely now is improper block-working referred to in an accident report. As we had occasion to remark on page 476 of our issue of March 27, 1930, when it seemed possible that the Leighton Buzzard disaster might have been caused by an irregularity by the signalman, there are 25,000 signalmen, who protect the movements of trains which run 400 million train-miles a year over 20,000 miles of railway. The significance of those figures is greatly increased when we remember how easy it is for a signalman to record the passing of a train before it has arrived or to send a train forward before it has been accepted. The particular offence in this case—the irregular cancellation of the train on line indication—has not been mentioned in an accident report since a collision at Edge Hill on July 4, 1906, and had only once previously been the cause of an accident since the opening of the present century.

Colonel Mount's present report merits attention from the other companies besides the L.M.S., in that the concluding paragraph suggests that, in view of the incidence of fog this winter, it would be well, if it has not already been done, for consideration to be given to a comprehensive review of similar situations to that at Camden, particularly on the more heavily-trafficked lines which may be subject to such weather conditions.

Kenya & Uganda Railways and Harbours

RESULTS for the year 1933, both of the railways proper and of the combined railway, harbour, and steamship services in Kenya and Uganda, showed a great improvement on those of 1932, as indicated by the report recently furnished to us by Brigadier-General Sir G. D. Rhodes, the General Manager. They illustrate the effect of the measures taken during the past three years to cope with the financial depression. Combined earnings of the railways and harbours for the year ended December 31, 1933, amounted to £2,426,184, an increase of £305,169

or 14.39 per cent. on 1932. Ordinary working expenditure, exclusive of contributions to renewals fund on account of depreciation, amounted to £1,121,145, a decrease of £48,240 or 4.13 per cent. as compared with 1932, the operating ratio being reduced from 55.13 per cent. to 46.21 per cent. The gross surplus of £1,305,039 in 1933 is the largest yet recorded. Adding miscellaneous net receipts of £114,616 and allowing for £365,440 contributions to renewals fund leaves a net earnings balance of £1,054,215, which covers interest and sinking fund charges of £821,379, and leaves a surplus of £232,836, comparing with a deficit of £189,388 in 1932. The surplus has been transferred to the credit of the deficit account, which has now been reduced to £317,946. On the total capital expenditure of £22,418,140 the net earnings of £1,054,215 represent a return of 4.70 per cent. and on the interest-bearing proportion of this total, *i.e.*, £13,968,980, a return of as much as 7.55 per cent., both being returns which other administrations might well envy.

At December 31, 1933, the total railway route mileage worked was 1,625 miles on the metre gauge, including the 91-mile branch of the Magadi Soda Company. The only change is in the length of the main line Mombasa-Kampala, which is now given as 884 miles instead of 886. The lake route mileage was 3,716 against 2,984 at December 31, 1932. Comparative results of working the railway services (inclusive of lake steamers and motor transport services, but exclusive of harbour services) are shown in the accompanying table:—

	1933	1932
Passengers	512,999	558,492
Tons	771,714	726,154
Train-miles	2,587,739	2,454,237
Public freight ton-miles	308,338,673	256,180,707
Operating ratio, per cent.	47.41	56.79
Public ton-mile receipts	11.813 cents	12.12 cents
Average haul, miles	387	341
Passenger receipts	£160,786	£170,459
Goods receipts	1,821,927	1,564,967
Gross earnings	2,088,162	1,838,661
Working expenditure	990,054	1,044,161
To renewal funds	335,102	324,522
Miscellaneous receipts (net)	115,534	47,894
Net revenue	878,540	517,872
Loan charges	615,722	632,453
Surplus (+) or deficit (–)	+ 262,818	– 114,581

Passenger receipts were 5.67 per cent. lower, but goods receipts increased by 16.42 per cent., and the ton-miles (the work done for the public) increased by 20 per cent. in comparison with 1932. The number of public freight ton-miles is the highest ever dealt with, but the total revenue collected from the public is less by over £360,000 than the 1929 record figure. The average haul is the highest recorded. Between 1929 and 1932 there was a serious and rapid fall in average receipts per ton-mile, due to a disproportionate increase in tonnage of low-rated commodities and a diversion of high-rated commodities to road transport. This tendency has been checked but not eliminated. During the year under review there was a heavy increase in low-rated traffic due to the movement of a record tonnage of cotton seed, but wasteful road competition was completely stopped by legislation. There were no increases in rates. Although there was a net loss in their working, the branch lines already constructed do perform a useful service, as their tonnage forms an important proportion of the total tonnage. It became necessary during the year to introduce the quota system or "carriage by agreement" for maize and cotton seed for export, in order to avoid heavy peak conditions of movement with the consequential additional costs. With cotton seed the working of the system was entirely satisfactory, and in the case of maize the system proved reasonably elastic.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Recovering Lost Time

9, Strathearn Road, Edinburgh.

June 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have just noticed that Lord Monkswell states, in THE RAILWAY GAZETTE of May 18, that "Speed limitations, due to the conformation or condition of the line, to the strength of materials—or to the design of the engine and rolling stock—can be and are accurately calculated."

This is a most important subject, and, though I have taken an interest in it for many years, I have not come across a claim of this sort before. Perhaps Lord Monkswell will be good enough to indicate the nature of the calculations or his authority for their availability?

Yours faithfully,

REGINALD PETERS

A Suggested System of Standard Signal Aspects

London, June 11

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As a result of reading certain articles and letters in THE RAILWAY GAZETTE, it has occurred to me that a standard system of signal aspects is highly desirable. If signal engineers in this country could decide on such a system, and persuade the managers of their respective railways to adopt it, signal engineers as a whole would, I think, regain some of the prestige which, according to recent correspondence, they appear to be losing.

Amateurs sometimes rush in where experts fear to tread, and I hope the experts will look kindly on the following scheme for standardising signal aspects, which I submit for their consideration.

1.—RUNNING SIGNALS.

Note: R = Red, Y = Yellow, G = Green, O = Out (showing no light).

	3 ASPECT	4 ASPECT	5 ASPECT	MESSAGE	SPEED
SINGLE RED				STOP DEAD	
SINGLE YELLOW				BE PREPARED TO STOP AT NEXT SIGNAL	15 M.P.H.
SINGLE GREEN				NEXT SIGNAL IS NOT RED	UNLIMITED
DOUBLE YELLOW				NEXT SIGNAL IS NOT RED	30 M.P.H.
GREEN OVER YELLOW				NEXT SIGNAL IS NOT RED OR SINGLE YELLOW	45 M.P.H.
DOUBLE GREEN				NEXT SIGNAL IS NOT RED OR SINGLE YELLOW	UNLIMITED

2.—CALLING ON SIGNALS (and any other signals applying to shunting movements in the running direction on a running line).—These would be illuminated banner signals under the running signal or signals. In the off position



they would give the message, "Proceed prepared to stop short of any obstruction; speed 5 m.p.h."

3.—STARTING SIGNALS FROM SIDINGS TO RUNNING LINES.—These would show the same aspects as running signals, but the signals would be lower and the lights would be small and not so bright as running signals.

4.—ALL OTHER SIDING, SHUNTING, WRONG-ROAD SIGNALS, &c.—These would be illuminated banner signals.

Conversion of Existing Systems

Some existing colour light schemes fit into this proposal; many others could be made to conform with it by slight alterations. The principal difficulty would be in converting existing two position block sections. This would be done in two phases, of which the second, and more expensive, phase might be spread over many years. The two phases will be considered in detail.

Phase I (1) Distant Signals.—Any distant signals which still show a red light in the on position would be altered to show a yellow light in that aspect.

Phase I (2) Home, &c., signals.—Pending the change contemplated in Phase II, the aspect "Red changing to Green" would, as at present, give the message, "Permission to proceed under rule 39 or 40."

Phase I (3) Slotted Distant.—Pending the change contemplated in Phase II, the lights would be altered to give these

aspects:—. The third aspect, "Yellow and Green," would give the message, "Next signal not red or yellow; speed unlimited."

Phase I (4) Calling-on Signals, &c.—Pending the change to banner signals, the lights of existing signals would be altered

to give the following aspects:—. The second aspect, "Red over small yellow," would give the message, "Proceed prepared to stop short of any obstruction; speed 5 m.p.h." This alteration would not be made until after the slotted distant had been altered as above.

Phase I (5) Siding to Running Line Starters.—Lights would, if necessary, be altered to show a red aspect in the on position and yellow or green in the off position, according to whether or not there was an advanced starter.

Phase I (6) Other Siding and Shunting Signals.—Pending the change to banner signals, lights would, if necessary, be altered to show red in the on position and yellow in the off position.

Phase II (1) Distant Signals.—Arms would be altered to show AND INSTEAD OF AND .

Phase II (2) Home Signals (and shunting signals where there is an advanced starter).—These would be converted to three aspect signals.

Phase II (3) Advanced Starting Signals (or Starting Signals where there is no advanced starter).—The arms would be altered to go to "full cock" in the off position.

Phase II (4) Slotted Distant.—These would be converted to three, four or even five aspect signals, according to circumstances.

Phase II (5) Siding, Shunting, Calling-on Signals, &c.—These would be converted to illuminated banner signals.

Phase II (6) Junction Signals.—Conversion to the speed principle, with route indicators where necessary, would probably be considered advisable.

Yours faithfully,

LANDRAIL

[We commend these suggestions to the attention of the Railway Clearing House Committee which is considering the question of signal aspects. A difficulty we foresee is that to get the accurate movement of the signal arms that will then be necessary they will have either to be power-worked or actuated by double wires. Were that possible, the aspects that can now only be given by light signals could be displayed by the semaphores. There is a good deal of similarity, in certain respects, between "Landrail's" proposals and the system of signal aspects now used on the Belgian National Railways, introduced by the late M. L. Weissenbruch.—Ed. R.G.]

THE SCRAP HEAP

LIBELLOUS !

A very unfortunate error by a typist, in a notice displayed by a Liverpool travel agent, has resulted in a reference to the "London, Midland and Sottish Railway."—From the "Liverpool Post."

COMMISSIONER EASTMAN'S QUESTIONNAIRES

In connection with the questionnaire on passenger traffic which has been circulated to 200,000 persons in the United States, it has been proposed that the following suggestions in regard to the comfort of passengers have been overlooked:—

Would you like to be able to take your dog with you in the passenger coach or Pullman car?

Would you (if a man) like to have "hostesses" on the car?

Would you like to have a canary bird in your section or compartment?

Would you (if a man) like to have free cigars or (woman or man) free cigarettes?

Should the railroad company send a cab for you if your journey is to be more than fifty miles?

Should the railroad company complete your journey by sending you to your hotel or home in a cab if you are tired and can't afford the cab fare yourself?

Would you prefer an alarm clock to depending on the porter to call you in the morning?

Should there be a library on the train?

Should the toilet paper match the window hangings in colour?

Should there be a teacher of contract bridge on the train so that, when you arrive where you are going, you can take your proper place in society?

Last, but not least, if all these things were done for you, would you be willing to pay for them? If so, how much? And if they, as well as other things suggested in the questionnaire, were done for you by the buses as well as by the railroad trains, at the same price, would your preference as between the bus and the railroad train be altered?

The train which continues the journey from the frontier to Moscow is certainly the most comfortable train in the whole of Russia. This perhaps is not surprising when one realises that the sleeping cars were built by the International Sleeping Car Company before the war, seized by the Bolsheviks, and now "socialised" by the Soviet Government, and form part and parcel of the material of the State Railways. The sleeping-cars are much wider than the cars used either in Europe or the United States. The gauge is wider and the carriages are ever so

much higher than a European railway carriage: this is because of the absence of tunnels in Russia. I have travelled over 2,000 miles in the country, and have yet to meet my first railway tunnel there. — From "Mirrors of Moscow," by H. J. Greenwall.

SILENCE COMPARTMENTS ?

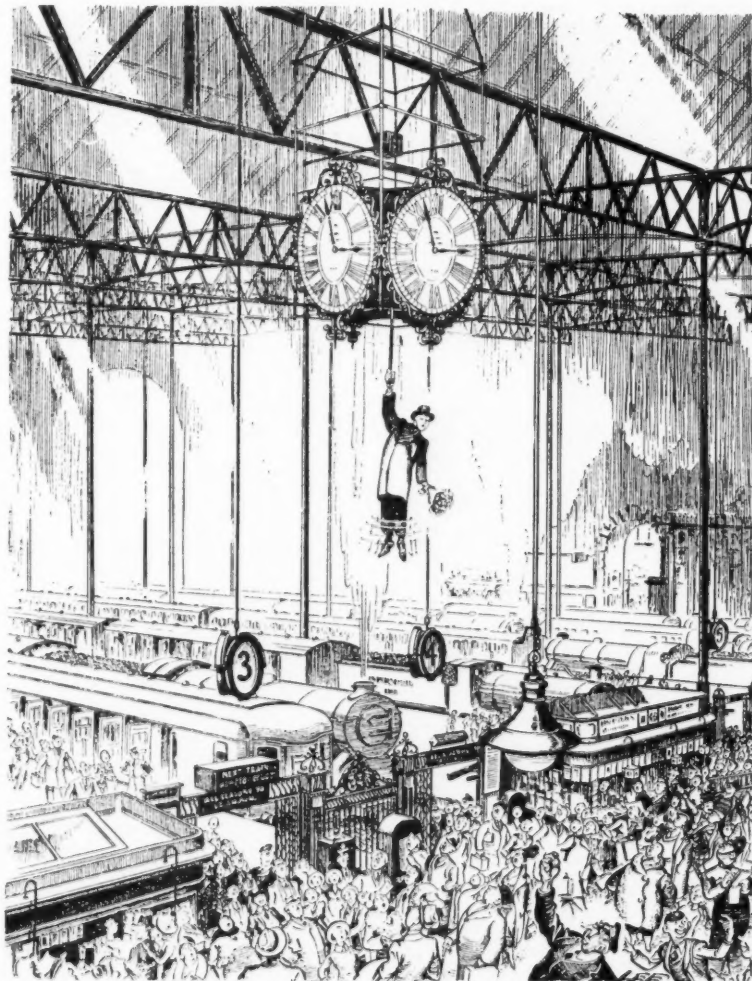
The following letter recently appeared in *The Daily Mail*:

"Is it fair that one should have to walk the whole length of a train to find a compartment in which one feels it will not be resented if one does not at once open up a conversation with one's fellow-travellers? Some compartments might be labelled 'Silence,' others 'Chatter'."

On this, "Phipps" comments: "Why not? There are times when the

most tolerant of us feel like throwing suitcases at our fellow-travellers. There is the corner-seat philosopher whose scope ranges from electoral reform to Greta Garbo. There is the human guide-book whose encyclopaedic yippings about passing eyesores—he calls them 'Landmarks'—reduces the victim to a state of hysteria. And there is the plain, unvarnished bore from whose platitudinous booming the listener may take the rest of his holiday to recover.

"Such clearly defined types should be as rigorously pigeon-holed as the smokers and abstainers. Compartments might be labelled 'Amateur Politicians'; 'Saviours of Farming'; 'Reminiscent Anglers'; and so on; or more collectively, 'Crashing Bores.' And while the railway company was indexing its patrons, why not include a few compartments labelled 'Bad Colds'; 'Three or More Children'; 'Orange Lovers'; and 'Fresh Air Fiends'?"



"I DON'T CARE WHAT YOU SAY. SHE SAID SHE'D MEET ME UNDERNEATH THE CLOCK."

[Reproduced by permission of the proprietors of "Punch"]

Not only a cartoon but also a well-drawn and recognisable, if not entirely accurate, railway station drawing!

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

Proposed restriction in Indian coal output—New Zealand railways and earthquakes—The railways of Latvia—Important new loop connection at Germiston, S.A.R.—South African estimates and programme—Extension of electrification in Denmark

INDIA

Coal Restriction Schemes

The Indian Mining Association, in consultation with other coal interests, submitted to the Government of India a scheme for the restriction of output in order to raise prices above the present uneconomic level. After careful consideration of the proposals, the Government replied that it could take no action until (1) there was unanimity among the colliery owners on the restriction scheme; and (2) satisfactory arrangements were devised to prevent inordinate rise in prices. The Government of India's reply further states that any restriction scheme that may be agreed to will not apply to railway collieries. The railways purchase over two million tons of coal annually and it is only reasonable that the Government of India should endeavour to safeguard the interests of the railways before accepting any proposal that will have the effect of raising the price of coal.

Export of Manganese Ore

At the last annual general meeting of the Central Provinces Manganese Ore Company, the Chairman gave some interesting figures relating to the world production of steel which has an important bearing on the business in manganese ore. The world production in 1932 was 49,160,000 tons and rose to 67,800,000 tons in 1933, the figures for 1929 being 118 million tons. The working of the Manganese Ore Company showed a substantial profit in spite of the low prices quoted for Russian ore in Europe. The new port at Vizagapatam enabled the company to meet part of the demand for second grade ore which was difficult to sell in the past on account of high railway rates to Calcutta and Bombay. Sufficient freight, however, was not always available at Vizagapatam and the shipment of second grade ore would remain restricted until a much larger number of steamers loaded at this port. The Chairman complained that the Bengal-Nagpur Railway had not acceded to the company's request for a lower rate of railway freight on second grade ore to Calcutta in the event of steamer space not being available at

Vizagapatam. This complaint does not, however, take into adequate consideration the very substantial reduction in railway freight effected on the Bengal-Nagpur Railway for manganese ore at a time when the industry was severely hit by the falling production of steel and the intense competition from Russia. It is, obviously, impossible for the railway to differentiate between various grades of ore for the purpose of freight quotation.

NEW ZEALAND

Earthquakes and the Railways

Mr. G. H. Mackley, General Manager of the New Zealand Government Railways, recently explained the measures taken by his administration in the event of earthquakes. For instance, immediately the shocks of March 5 occurred, the department's own telephone and telegraph system was used to discover and record the actual area along railway routes affected. The earthquake occurred at 11.48 p.m. Within two hours the engineer in charge of the district left Wellington with a breakdown train for the spot (near Paraparaumu, 33 miles north), where repairs were most urgently required. By 7.0 a.m. on the 6th the track was sufficiently repaired for the slow passage of trains. Besides special patrol by track maintenance gangs, and the issuing of instructions to drivers to proceed cautiously, arrangements were made for inspection of all structures. The greatest delay to any train running when the earthquake occurred was less than four hours, no passenger service was cancelled, and no accident occurred to any passenger or goods train. It is estimated that railway repairs will cost £3,000.

A Big Undertaking

A very strong drive is being made to have the North Island East Coast Railway extended. If this work is undertaken it will mean heavy orders for material from Great Britain, for the line is one requiring much bridge-work and heavy construction generally. It would add about 150 miles to the existing track.

The statutory position is that no new railway construction work may be

undertaken until a report by the Government Railways Board has been laid before Parliament, and a resolution authorising the work has been passed by both Houses. The Prime Minister, as a result of representations made to him, is going to ask the Board to examine further data submitted by the energetic local committees, and if need be to meet the committees. He cannot legally do more. The Government in this matter of railway construction is now by law wholly in the hands of the Railways Board and of Parliament. To obtain their railway the people of the East Coast must convince the board that it will be a paying proposition. It is generally conceded that the board's decision is practically certain to be final, for its work to date has won the complete confidence of the taxpayers.

Back to the Railways

The increased public interest in the railways, as indicated in the improvement in the passenger and freight business which has been a marked feature during the past financial year, is reflected in the operating sections of the railways. In particular, the Hutt Valley workshops have been fully occupied with the regular replacement of obsolescent locomotive stock, which has secured a more efficient distribution of engine power. As is generally known, these workshops were specially designed to modernise the methods of renewal and replacement of the locomotive requirements for the whole of the North Island, and the general improvement in the standard of locomotive power which has been effected in the last few years has been brought about by the greater facilities and more modern methods in the new workshops. The Hutt Valley workshops are at present giving employment to over 1,000 men, who, besides doing repairs to locomotives and wagons, carry through a building programme in connection with new locomotives, and the programme of work upon which the workshops are engaged is likely to require continued employment at much the same standard as at present.

Workshop Activities

The new "K" class locomotives which have given so much satisfaction since the first of this type was put on the road now number twelve, and a further eight are to be completed during the current financial year. The workshops are able to turn out one of these locomotives complete every six weeks, in accordance with the regular schedule planned for this construction. At the Hutt workshops all the cast metal and fabricated steel pressings required for the new cars and wagons under construction at the Otahuhu workshops are made, as the special equipment here meets the iron and steel manufacturing requirements of the department throughout New Zealand generally.

Another feature which is giving new work to the Wellington district work-

shops is the Wellington new station yard, where points and crossings are required in connection with the comprehensive layout arranged there. The provision of these points and crossings is giving extra employment to the manufacturing department of the Hutt Valley workshops accordingly, and this work is likely to continue throughout the next year or two.

U.S.S.R.

New Moscow-Manchuria Express

A new through express between Moscow and Manchuria was introduced on March 1. Special appointments, including hot water in every compartment, baths, radio, a library, and opportunities for recreation are provided for passengers. A guide through whom hotel, steamship, and even theatre reservations can be made, travels with the train, which has been named the Lux. Similar facilities are being planned for all long-distance expresses in the U.S.S.R.

LATVIA

The State Railway System

Latvia, with its population of 2,000,000 and area of 25,000 sq. miles, has, thanks to its having for years been a buffer state between Russia and Germany, a very mixed system of railway communications. The complete system has no fewer than five different gauges with lengths as follow:—

- | | |
|---|-----------|
| (1) Russian gauge, 5 ft. ... | 1,746 km. |
| (2) European standard gauge, 4 ft. 8½ in. ... | 319 " |
| (3) Metre gauge ... | 49 " |
| (4) 2 ft. 6 in. gauge ... | 312 " |
| (5) 2 ft. gauge ... | 529 " |

Total 2,955 " or 1,836 miles.

Of the 2,955 km. total, 2,779 km. are worked by the State, the balance being small narrow gauge lines.

The State system centres upon Riga, the capital and by far the largest city, and the station, which is large and handsome, has terminal and through platforms at different levels, some of them being served by mixed (5 ft. 0 in. and 4 ft. 8½ in.) tracks.

The Main Routes

Of the main diverging routes, those westwards are to Ventspils and Liepaja, 176 and 203 km. distant, these towns being Baltic ports open all the year round and not icebound in winter as is Riga. Liepaja, the second city of the republic, is reached either by the all-Latvian 5 ft. 0 in. gauge route or by the 4 ft. 8½ in. gauge line which passes through a corner of Lithuania. Railways of four different gauges converge upon this port. The direct route from Riga to Berlin runs southwards, very soon crossing the frontier into Lithuania. North and eastwards the lines are all of the Russian gauge and run to Estonia and the U.S.S.R.

Traffic, Coaching Stock and Locomotives

Except for the first 20 miles of the Riga-Ventspils line, which serve Gulf seaside resorts, and carry a moderately heavy traffic and are double tracked, all lines are single and have only two or three trains each way a day. All trains, almost without exception, and including the so-called international expresses, stop at all stations and run at very low speeds. The fastest schedule is between Riga and Jelgava by the Berlin expresses, 41 min. non-stop for the 43 km. Dining and sleeping cars of the International Sleeping Car Company are included in the principal trains in most directions. First class U.S.S.R. through coaches run to and from Leningrad and Moscow, the 910 km. between Riga and Moscow taking 35 hours. Except on international trains, there is no first class accommodation, but the seconds are upholstered and fairly comfortable.

Signalling is of the German type. The locomotives are mostly wood-burning, the 2-6-0 type being the most numerous. There are, however, many 4-6-0's, 2-6-2's and 0-8-0's, all tender engines. The only tank engines are 2-2-2T's used on light local trains in the Riga area.

SOUTH AFRICA

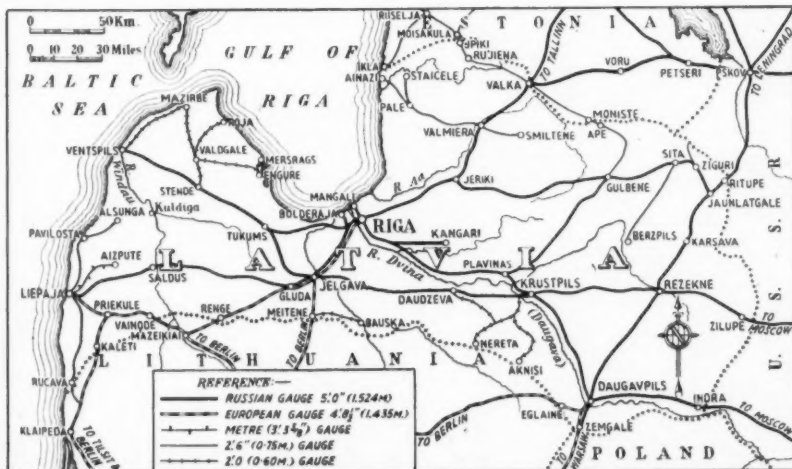
Germiston-Elsburg Loop Line

This line, which is part of a scheme of improvements in the Germiston area, will shortly be opened and will avoid engines drawing trains from Johannesburg to Natal and the Orange Free State (or *vice-versa*) having to change ends at Germiston, an arrangement which has been the cause of considerable congestion in the yard. Germiston is the largest junction in South Africa and handles very heavy traffic from all parts of the Union. The layout, however, is not ideal for handling and marshalling trains, one of the chief drawbacks being the position of the locomotive sheds in relation to the goods yard. When the new loop line is in operation, traffic from the Witbank and Breyten sections for the Orange Free State, Cape Midland and Cape Eastern Provinces marshalled in block loads at the starting depot can be diverted without entering Germiston shunting yard. The new loop leaves the East Rand line just east of the Germiston locomotive yard and connects up with the main line to the south of Elsburg. The line, which is three miles eleven chains in length, and is of double track, is in the midst of an industrial area necessitating the provision of one over- and three under-bridges to deal with vehicular and pedestrian traffic.

The main feature of the line from a construction point of view is the exceptionally high bank across the valley between Germiston East and Elsburg. The maximum height of this embankment is 94 ft. and in length it is nearly 2½ miles, whilst approximately one million cubic yards of sand have been used in its construction. A substantial saving in operating costs at Germiston is anticipated as the result of the more convenient working and the elimination of delays which have been unavoidable under present conditions.

Railways and Harbours Estimates

The administration's estimates of expenditure on capital and betterment works for the financial year 1934-35 amount in the aggregate to £2,487,624. Included in this total are sums of £184,989 to be spent on construction of railways, £1,707,802 on new works on open lines, £74,970 on rolling stock, £212,000 on harbours, £81,000 on airways, £76,858 on working capital and £150,000 on unforeseen works under these heads. A total of £711,673 is to be expended on the permanent way, in doubling lines and relaying and strengthening tracks throughout the



Map of the Latvian Railways

country. The provision for strengthening existing bridges and culverts amounts to £151,173.

As regards harbour works, new works and improvements in Algoa Bay harbour will absorb £180,000 and large sums are provided in the estimates for improvements at Table Bay harbour. When all the work contemplated at this port is completed the amount spent will approximate one million pounds and for the present year £230,000 has been allotted. Of the whole scheme of development, the biggest item is the erection of a pre-cooling store, the cost of which will be £275,000 and the work to be done on this building this year will cost £180,000. The remainder of the money allotted for the present year is to be spent mainly on the provision of new deep water berths and the widening of the south arm.

Rolling Stock Estimates

The estimated expenditure on rolling stock in the current financial year will be £1,359,862 of which £74,970, as already mentioned, will come from loan and betterment funds and the balance from the Renewals Fund, working votes and released material. The two largest items under this head are the importation and building of 50

19B class engines at a cost of £350,000 and the construction of 2,000 ES4 type four-wheeled trucks at a cost this year of £408,000, the total cost being £600,000. A sum of £38,698 will be required as additional capital for road motor services.

DENMARK

Extension of Electrification

An official announcement states that as soon as the electrification at present in hand has been completed, the line from Valby to Vanløse is to be equipped for electric traction. This work will form the final link in a complete "inner circle" of electrified lines. It will also form the first section of the electrification to Ballerup. It is also the intention of the administration to widen the existing double line between Valby and Glostrup and work the additional tracks electrically.

Petrol Railcars

On the State system, trains consisting of two four-wheeled petrol-mechanical railcars with one or two trailers between them, have proved very successful in developing new suburban or outer suburban traffic to the extent of justifying subsequent electrification. On the

Copenhagen - Valby - Vanløse - Ballerup and the Copenhagen-Glostrup main line, however, these four-wheel units have now been replaced by petrol-electric bogie railcars, of which the administration owns 16. They were purchased in 1929-30 and have two 140-h.p. motors. After a period of mishaps and failures, they are now giving excellent service, and in the year ended March 31, 1934, each of them ran about 73,000 km.

THE FAR EAST

Dining Cars on Manchukuo Railways

The restaurant car service on the Manchukuo railways to be augmented by the addition of twenty new cars, which will provide for the service of separate menus for Chinese, Japanese and European passengers.

Peiping-Hankow Railway

The Administration of the Peiping Hankow Railway contemplates improvements and repairs and has applied to the Ministry of Railways for a sum of \$6,000,000 for this purpose. The question is under consideration, and as soon as sanction is given the work will be put in hand.

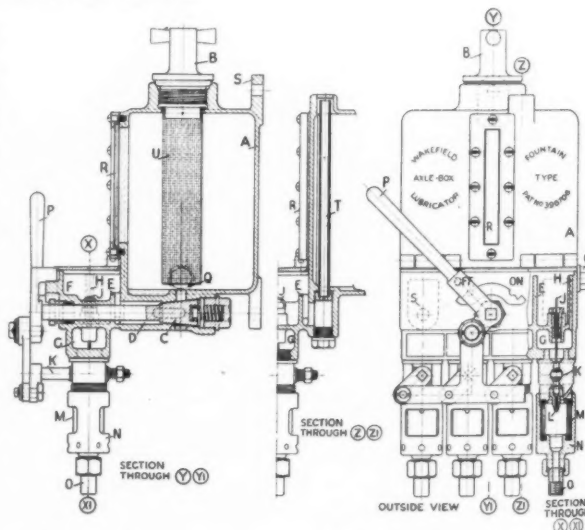
LUBRICATION OF RAILWAY AXLEBOXES

Details of the new Wakefield Fountain type lubricator

A NEW and ingenious method of lubricating locomotive axleboxes has recently been placed on the market by C. C. Wakefield & Co. Ltd., makers of the well known mechanical and hydrostatic lubricators used on railways and marine and industrial plants throughout the world. This latest type, illustrated here-with, consists of an oil reservoir A, fitted with a main shut-off valve C. This, when in the "on" position, allows oil to pass along the oil passage D into the feed chamber F. There it rises to a level just above the top of the outlet passage D, and is fed through the drip nozzle L, in drops regulated by the feed needles J. As soon as the oil level in the chamber F drops below the top of the passage D, air enters the oil reservoir A, through the air tube T, destroying the partial vacuum in the oil reservoir. Oil then again passes from the reservoir into the feed chamber F, as described above. This cycle of operations is repeated the whole time the operating lever is in the "on" position.

When the operating handle P is moved into the "off" position, the main oil-shut-off valve C, and shut-off valves K, above each sight-feed are closed and the oil in the chamber F continues to feed into the auxiliary oil chamber G. There it remains ready to flood the pipes immediately the handle P is again moved into the "on" position. Obviously the quantity of oil which accumulates in the auxiliary oil chamber will vary according to the length of time the operating handle P is in the "off" position. It will be seen that in this design of lubricator a practically constant head of oil is maintained in the feed chamber F, irrespective of the oil level in the reservoir A. Thus a uniform feed of oil is assured throughout the run. The lubricator, although described above as applicable to the lubrication of locomotive axleboxes, is

not limited to this, but can be used with equally satisfactory results on all types of engine bearings and frictional surfaces.



- A Oil reservoir.
- B Filling plug.
- C Main oil shut-off valve.
- D Oil outlet from reservoir to feed chamber.
- E Baffles.
- F Oil feed chamber.
- G Auxiliary oil chamber.
- H Air vent.
- J Feed regulating needles
- K Shut-off valves.

- L Drip nozzles.
- M Sight feed glass.
- N Sight feed fitting.
- O Oil outlets.
- P Operating handle. Two positions, Off, On.
- Q Drain plug.
- R Oil level gauge glass.
- S Fixing lugs.
- T Air inlet tube.
- U Wire gauze strainer.

NEW SENTINEL LOCOMOTIVES FOR SOUTH AMERICA

Three metre-gauge locomotives of the twelve-cylinder, twelve-wheeled type designed for high tractive power and low axle loads, have recently been delivered to the Société Nationale des Chemins de fer en Colombe

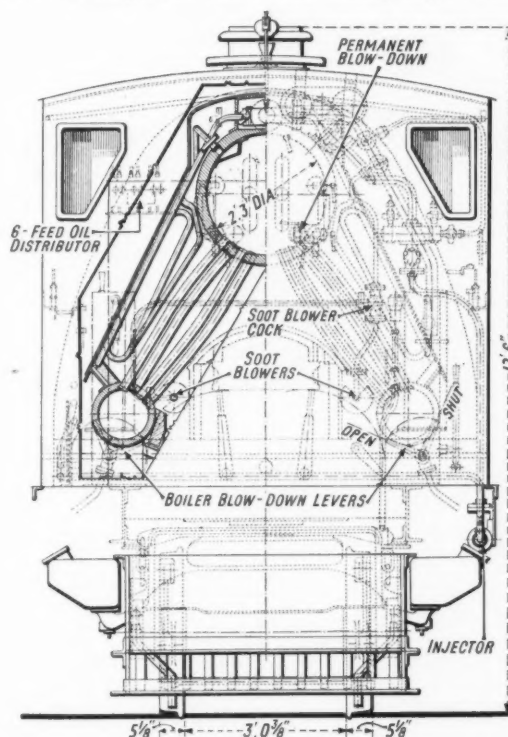
THE Sentinel Waggon Works Limited have recently delivered three locomotives of very interesting design to the Société Nationale des Chemins de fer en Colombe, and we are able with their assistance to illustrate and describe the locomotives herewith. One of their number has been subjected to a series of tests on a metre gauge line in Belgium where it gave very satisfactory results. In order to meet the requirements of the railway in South America for which they have been built it was necessary that the locomotives should be capable of developing a high tractive force and also that the total weight should be distributed over a number of axles so that the individual axle loads should be as light as possible. The details of the design have been very cleverly worked out and the purpose aimed at has been achieved by the use of twelve pairs of wheels, all uncoupled and arranged in the form of two bogies, the outer axles in each case being mounted in Bissel type trucks. The general arrangement drawing reproduced on page 1056 illustrates the layout of the locomotive and its component parts as a whole and not the least interesting feature is the boiler, which is of the Woolnough water tube type, to which we shall make reference in detail later.

The locomotives will have to undertake heavy haulage work on a line of railway which combines frequent steeply graded inclines and curves of small radius and, in working out the details of the design the makers kept in mind the fact that a range of similar locomotives having two, three and four axles, will be standardised in the future, it thus being necessary that the various parts should be designed and made for interchangeability in as high degree as possible.

General Description

The locomotive consists of a main frame, carrying the boiler, tanks, bunker, cab, feed pump and Westinghouse brake apparatus, mounted on two six-wheeled bogies by means of hemispherical pivot bearings and plain side bearings. The Bissel trucks just mentioned have sufficient side movement to allow the locomotive to negotiate freely a curve of 80 m. radius. The trucks are fitted with springs to control the side movement of the axleboxes and all axles are identical, except for the spring links and are of the roller bearing type lubricated by grease. Each axle is separately driven by a small totally enclosed compound steam engine of the Sentinel patented design, having a separate steam pipe with flexible connections to allow for the various independent movements of the engine. The exhaust pipes are also provided with flexible joints. The engines have cylinders $4\frac{1}{2}$ in. and $7\frac{1}{4}$ in. diam. by 6 in. stroke, and distribution of steam is effected by piston valves actuated by Stephenson's link motion valve gear. Relief valves of ample size are provided at each end of each cylinder to return any water trapped by the pistons to the steamchest or low-pressure receiver, as the case may be, drain valves and a charging valve for admitting steam at reduced pressure to the receiver being provided. The whole of the motion gear and crankshaft assembly is enclosed in the crankcase and, as this is partly filled with oil, every part is thoroughly lubricated by the splash method. Roller bearings of ample proportions are fitted

to the big ends, crankshaft bearings, eccentric straps and the bearings supporting the engine on the axle. The front end of each engine is suspended from the bogie frame by means of a link having a spherical lower end enclosed in a graphite packed bearing and rubber pads at the upper end, thus ensuring freedom of movement of the engine and a shock absorbing connection with the bogie frame. No lubrication of any kind is needed for these suspension links. A mechanical lubricator, driven off the right intermediate wheel journal end of the trailing bogie is utilised

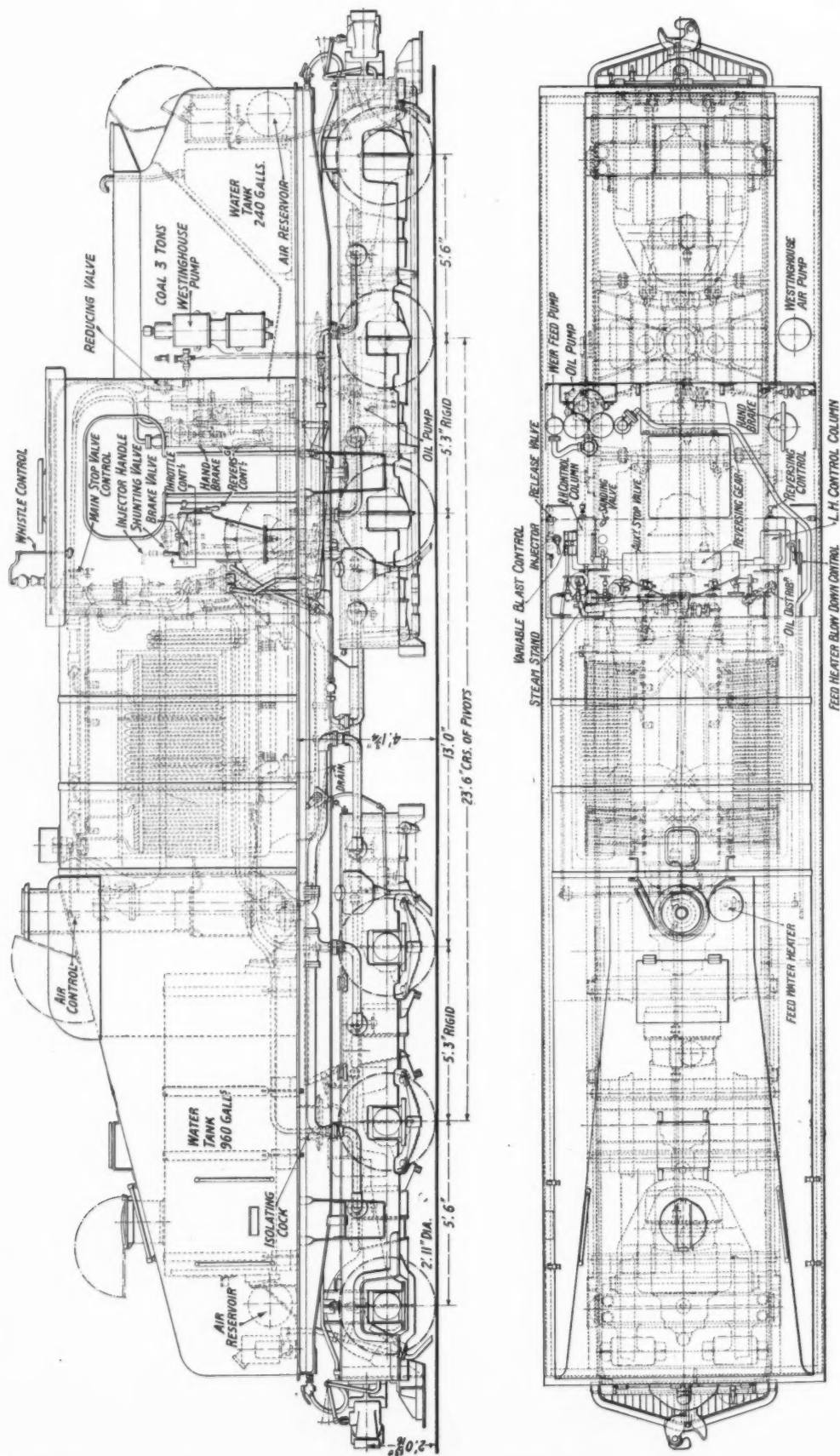


Part section through boiler, showing water tubes

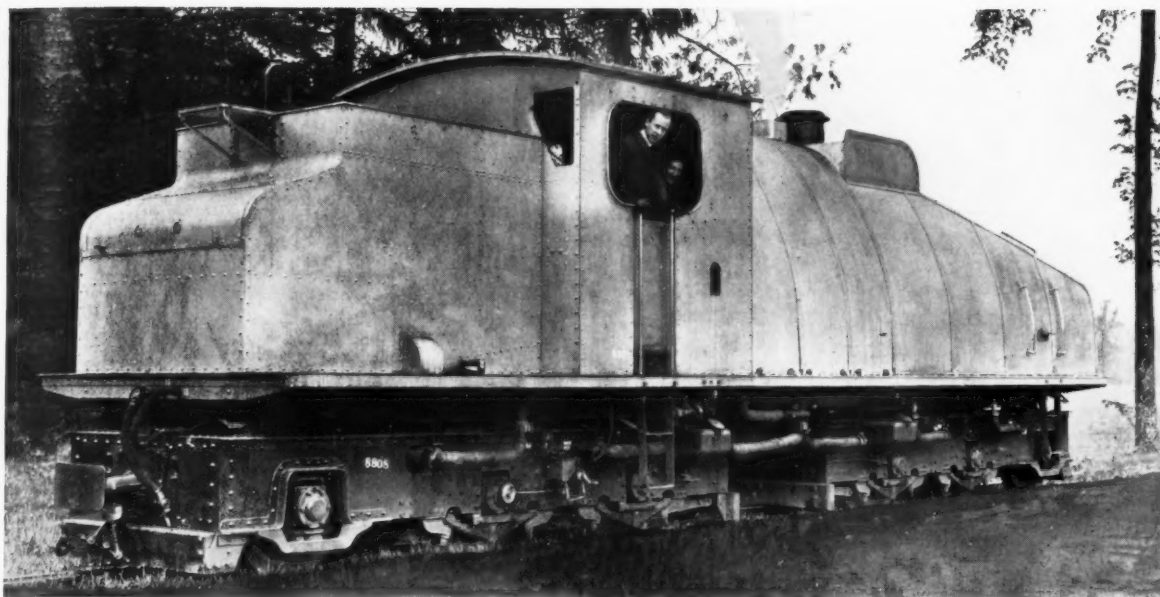
for cylinder lubrication. It forces oil under pressure into a six-feed distributor mounted in the cab, and individual pipes lead the oil to the six engines, the supply of oil to each being separately regulated at the distributor.

One would naturally enquire as to what is likely to happen in the event of the failure of one engine. Experience with locomotives of this type has shown that the possibility is a remote one, but nevertheless this contingency has been provided for and, should it occur, the engine which is out of action can be disconnected from its axle by unscrewing the nuts on the crankcase end of the engine stanchions, an operation requiring only a few minutes to accomplish. By closing the isolating cock on the steam pipe of the disabled engine the locomotive can then be driven by the remaining engines.

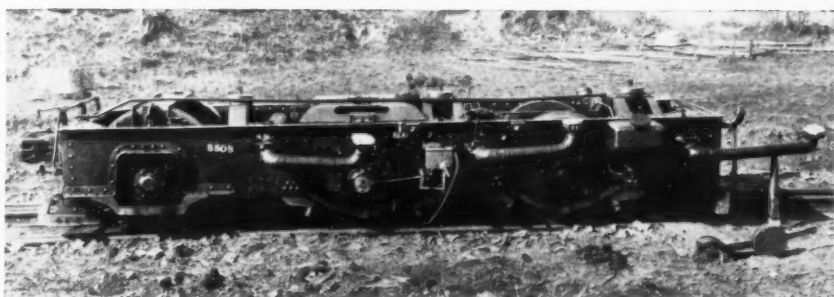
The crankshaft of each engine carries at its centre a hardened and ground pinion meshing with the gear wheel



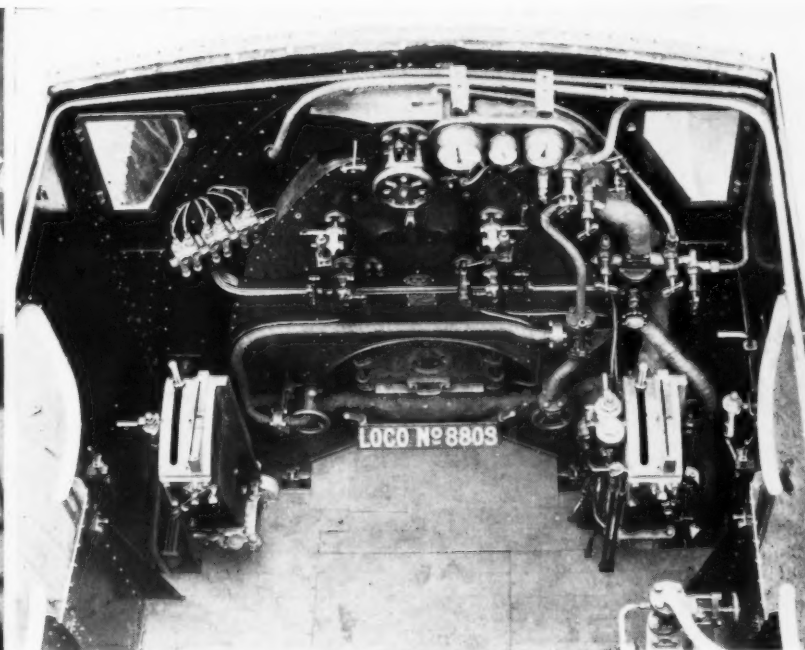
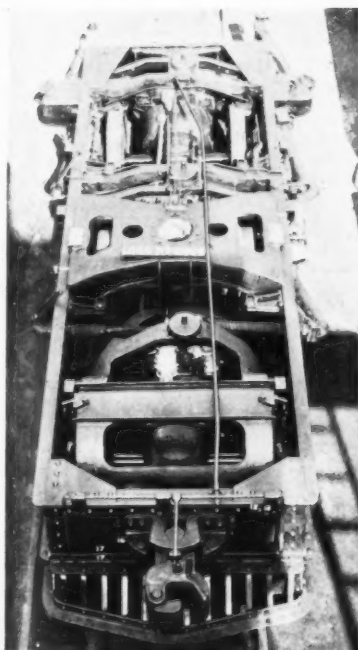
Elevation and plan drawings, showing general arrangement of the Sentinel twelve-cylinder locomotive for Colombia



Above : Three-quarter view of 12-cylinder Sentinel locomotive



Left : One of the two six-wheel driving bogies, each of which has three compound engines, one of which drives a Bissel truck (on left)



Left : One of the bogies from above, and (right) view of footplate with controls

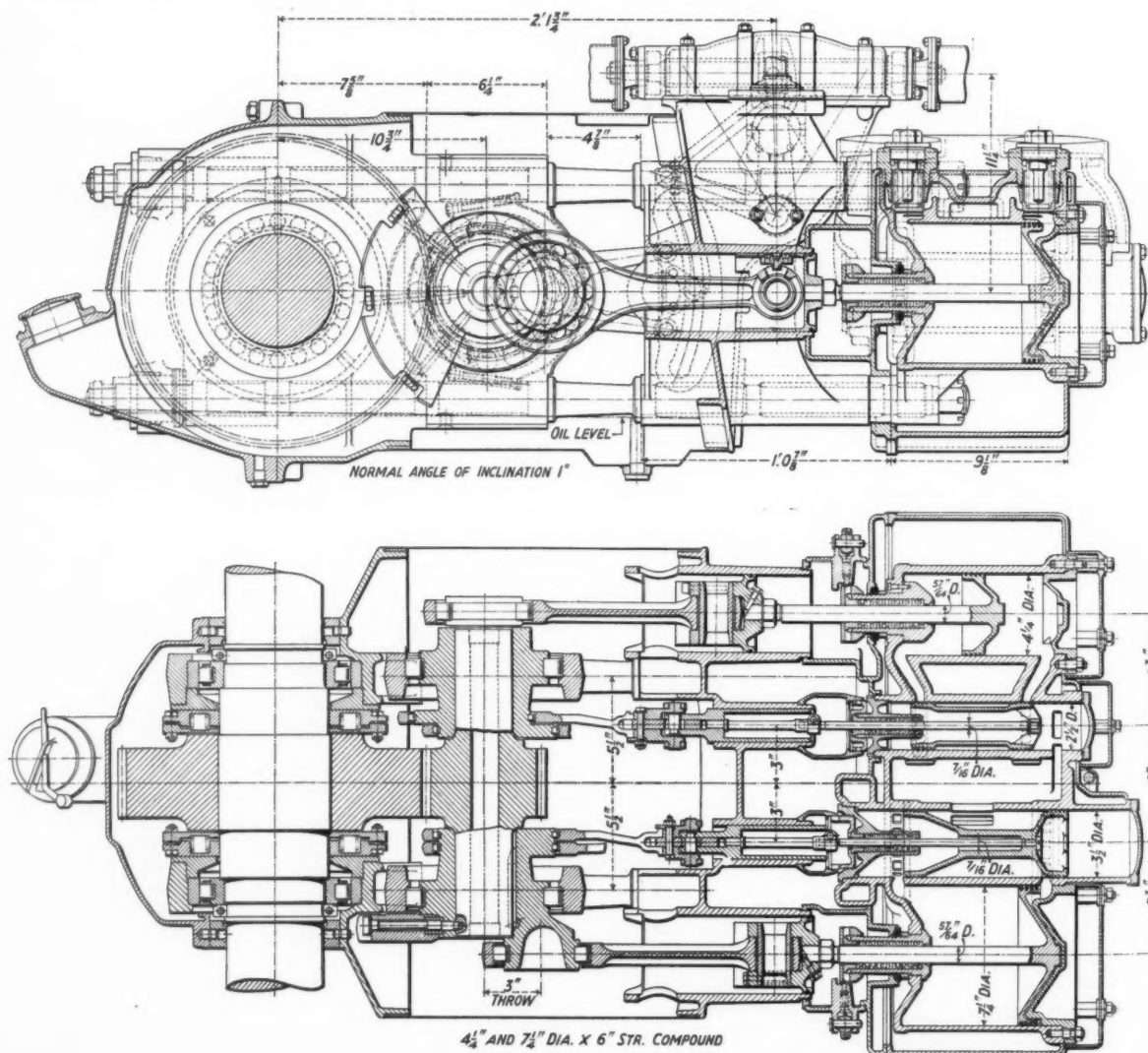
on the centre of the corresponding axle, the ratio being 2.74:1. The engines are mounted horizontally in the bogie frames with the cranks revolving transversely in relation to the frame. Experience has shown that the method adopted for supporting the engines is entirely sound and that each engine is permitted to freely follow the movements of the axle it drives.

Boiler

The boiler, which, as already stated, is of the Woolnough water tube type, works at a pressure of 550 lb. per sq. in. It consists essentially of one steam and two water drums connected by two banks of tubes spanning the fire space and the smokebox. A brick partition wall divides the space between the tube banks into a firebox at the footplate end and a smokebox at the chimney end. The gases pass laterally through the tube nests along the side flues past the dividing wall and are then drawn through the nests of tubes in that region into the smokebox and thence to the chimney. The steam drum is of such dimensions as to permit of a man entering it and the tubes are so arranged and proportioned that

every part of every tube can be sighted internally and readily cleaned, whilst the manhole doors and hand hole doors are arranged so that the interiors of all tubes are readily accessible. In this boiler the circulation is positive under all conditions of working. From the smokebox end of the steam drum into which the feed water enters, the water circulates down the tubes at that end, along the water drums towards the fire and up the tubes at the firebox end, and thence along the steam drum. The incoming feed water is raised to approximately boiler temperature in a vertical heater chamber in order to facilitate the precipitation of most of the solids from the water before it enters the boiler proper.

The superheaters are placed between the boiler tube nests and the side casings in such a manner that, while absorbing the required amount of heat from the flue gases they protect the side casings from excessive heat. The boiler casings are all air-cooled and the warm air is collected and led to the underside of the firegrate, thus providing a measure of combustion air pre-heating. The blast pipe is fitted with a means of varying the blast to suit conditions of working, this being afforded from the footplate.



Sectional elevation and plan of Sentinel compound engine unit. One of these drives each of the six axles

The grates are made in two halves each mounted on a longitudinally disposed trunnion to allow of the fire being cleaned or dropped into the ashpan, each half being operated from the foot-plate. The designed water-level is from the bottom to $4\frac{1}{2}$ in. up the glass and, as there is a substantial margin of safety below the lowest visible level, there need be no hesitation about working with a low glass. The safety valves are of the Cockburn type set to lift gently at 525 lb. per sq. in. pressure and to "pop" at about 550 lb. per sq. in. pressure. Blow-down valves are fitted to the bottom of each water drum and also the feed heater chamber, all of them being operated from the footplate. There is also a permanent blowdown valve on the lower water gauge pad which discharges to the ashpans, for the purpose of providing steam to keep the firebars cool. The boiler is normally fed by a Weir direct-acting feed pump which provides a convenient means of feeding regularly under any conditions of working. An injector is fitted as a standby.

The following are general particulars of the boiler:—

Heating surface:	
Generating tubes	344 sq. ft.
Superheater	145 sq. ft.
Total	489 sq. ft.
Grate surface	16.6 sq. ft.
Working pressure	550 lb. per sq. in.
Length of top drum	About 9 ft.
Length between extreme tube centres	6 ft. $7\frac{3}{4}$ in.
Height, centres of drums	3 ft. $11\frac{1}{2}$ in.
Diameter of steam drum, external	2 ft. 3 in.
Diameter of water drums, external	1 ft. 2 in.

Steam soot blowers controlled from the cab are provided for keeping the exterior of the boiler tubes clean. At the rear of the cab there is a coal storage bunker having a capacity of 3 tons. The water supply is carried in two tanks, one forward of the boiler having a capacity of 960 gall., another at the rear behind the cab with a capacity of 240 gall., a balance pipe being fitted to connect the two tanks. The Westinghouse air pump is mounted outside the tender on the left hand side.

Control Gear

The throttle and reversing control levers are mounted on two columns placed on either side of the footplate for convenience in driving and shunting. The throttle lever is connected by levers and rods to a throttle valve mounted on the front of the right hand column. Movement of this lever first opens a pilot valve, which allows steam to pass to the underside of the main valve, thus balancing it. This valve is of the poppet type and closes on to a conical seat, below which latter is a piston type extension covering the six passages which convey the steam to the corresponding number of engines. After the pilot valve has been opened, a further movement of the throttle lever lifts the main valve $\frac{1}{8}$ in. before the piston extension begins to uncover the steam ports. In this way the tendency for the seat of the main valve to become scored by the flow of steam is avoided, while at the same time, when the valve is closed, it has the full pressure on it necessary to keep it shut.

The reversing screws on the several engines are all connected together by flexible jointed shafts. A further shaft connects these with another short shaft in a gearbox under the footplate and this in turn is operated by chains from the control columns. The short vertical chain between the gearbox under the footplate and that above the footplate is adjusted by raising or lowering the shafts in the latter on which the sprockets are mounted and the chains from this to the two columns are adjusted by means of the eccentrically mounted sprockets at the foot of the two columns. Suitably notched locking plates secure the spindles of these sprockets in a sufficient number of positions to give ample adjustment. A slot

link worked by the reversing indicator nut connects with the throttle lever partly closing it when the engine cut-off is reduced beyond 50 per cent. Sanding gear of the Westinghouse compressed air type is fitted, this being operated by the valve on the right hand control column.

The locomotive, which develops a tractive effort of 17,500 lb., was designed to haul a passenger train weighing 200 tons gross over a ruling gradient of 2 per cent., its gear ratio being designed for this gradient. The corresponding load for the $3\frac{1}{2}$ per cent. gradients on the Belgian line is estimated to be 123 gross tons for a passenger train or 100 tons for a freight train. Under test the engine hauled a freight train weighing 114 tons made up of short wheelbase 10-ton wagons on the $3\frac{1}{2}$ per cent. gradient.

Some very definite claims are made by the Sentinel Waggon Works Limited on behalf of locomotives of this general type fitted with the Woolnough boiler. It is claimed that the steam consumption is not more than 13 lb. per b.h.p. hour, a saving of 50 per cent. in fuel being possible. The lower fuel and water consumption makes it possible to reduce in proportion the amount of fuel and water carried. Steam can be raised from cold in less than half the time required where locomotive boilers of the ordinary type are fitted. The inside surfaces of the boiler and tubes can be easily examined and any scale removed by taking off the doors fitted on the drums. Where a number of vehicles are in service and boiler inspections are carried out according to an established routine, the boiler itself can be removed from the locomotive and replaced by a spare one in a very short time, thus enabling all locomotives to remain continuously in service whilst ensuring adequate boiler maintenance.

Similarly, the engines are built in stock sizes fitted with different gear ratios, thus from a maintenance point of view the stocks of spares can be reduced to a minimum so that, by having one or two spare engine units on hand, the engine can be overhauled periodically without the necessity for laying up the locomotive for more than the few hours necessary to remove the engine complete with driving axle. When this spare engine axle has been fitted the one which has been removed can be adjusted at leisure. The fact that each axle is separately driven provides that all the weight of the locomotive is available for adhesion, thus making it possible to use a much lighter locomotive than would normally be necessary. The lighter weights coupled with the fact that the wheels and axles are in perfect running balance, and that the wheel base is extremely flexible, considerably reduces track stresses, while owing to the more uniform torque a high factor of adhesion is obtained and thus it is possible to start and haul heavier loads.

MANGANESE STEEL RAILS.—With reference to the Hadfield Era manganese steel, which is used on a large scale for steam and electric railways and tramways, the following is an interesting proof of its advantages.

I have with me a very interesting diagram showing a manganese steel rail weighing 95 lb. per yd. after 12½ years' hard service. This diagram shows the gradation of hardness from the surface inwards, also brings out the extraordinary wearing properties, and how under pressure the surface of the rail becomes hardened up to as high as 500 Brinell ball hardness, and as the material is abraded away the surface is renewed automatically.

This rail was supplied to the Great Eastern Railway in 1915 and was situated on a curve of 12-chain radius in the track at Bethnal Green from January, 1916, to August, 1928. The maximum number of trains per hour during the period of its service was 24.—*Sir Robert Hadfield at the annual general meeting of Hadfields Limited, Sheffield, March 28, 1934.*

THE INSTITUTE OF TRANSPORT EXTENSION OF PREMISES

FOR some time past the Institute of Transport has felt the need of larger premises, not only to provide better accommodation for its members, but also to house the increase in staff required to cope with widened activities and extending influence.

Until a short time ago the headquarters were confined to the southern part of the eastern wing on the first floor of No. 15, Savoy Street, Victoria Embankment, but recently the Institute was enabled to take over an adjoining apartment some 44 ft. long and 24 ft. wide. The Secretary of the Institute took advantage of this extension of premises to prepare a scheme for the re-arrangement of the headquarters; he devoted the original wing entirely to the staff, and allocated the new wing to the need of members of the Institute. The new apartment has been divided by partitions, and now from the staircase members pass into the members' reading room, 24 ft. long by 13 ft. wide; herein are a writing table and easy chairs, a stand for periodicals, the Institute notice board, and a counter for inquiries. On one wall is an oak-framed presidential name board bearing the names of Past Presidents, and on each side of the board their photographs are hung. The walls are decorated with a dark green dado and light coloured upper part.

From the reading room glazed swing doors give access to the Library, a lofty room 24 ft. long and 19 ft. wide. A room of this nature was much needed for stacking the increasing number of reference books, and they are now arranged in special book racks of blue coloured metal. The racks are in separate units, and between each pair hangs an electric light fitting specially designed to throw light upon the lowest shelves. With the space thus provided it has been possible to classify and arrange the volumes in a manner impossible under the former con-

ditions of restricted space, and books of general reference, periodicals, and volumes relating to transport in its several branches are now disposed in convenient order. The library is intended to serve as a committee room on occasions; to this end the Secretary has had oak tables made to his own design so that they can be arranged as one long table for committee tables. The chairs are also in oak, upholstered in blue; indeed, the decorative scheme of the apartment is based upon blue, the walls having a dado of dark blue and the woodwork being painted in two shades of that colour. The electric light fittings for the library and for the reading room were designed specially for the Institute by Siemens Electric Lamp & Supplies Limited, and consist of glass spheres set in blue-tinted metal panels with chromium plated rims, suspended by blue coloured rods bearing chromium plated knurls.

In the original wing the Secretary's room remains as it was, but in the remainder of the wing the old partitions have been pulled down and new ones erected to form more conveniently arranged offices for the staff, and the whole of the wing has been redecorated. The accompanying photograph shows a portion of the library.

The firms who took part in the work of this extension, the architects for the whole design of which were William Woodward & Sons are:—General contractors, G. E. Wallis & Sons Ltd.; electrical installation, Rashleigh Phipps & Co. Ltd.; electrical fittings, Siemens Electric Lamp & Supplies Limited; inter-departmental telephones, Ericsson Telephones Limited; library book racks, Luxfer Limited; library tables and chairs, Globe-Wernicke Co. Ltd.; locks and door furniture, Carter & Aynsley Limited; sanitary fittings, Doulton & Co. Ltd.; presidents' name board and notice boards and lettering, Eric Munday Limited; carpets, Maple & Co. Ltd.



A corner of the library in the extended premises of the Institute of Transport

RAILWAY NEWS SECTION

PERSONAL

Mr. John James Clare Hunt, who for the past 10 years has acted as Secretary to the Railway and Canal Commission, has been appointed by the Lord Chancellor as Registrar in place of the late Sir Robert A. McCall, K.C., who died in April last.

L.M.S.R. STAFF CHANGES

The following appointments have been approved by the directors:—

Chief Civil Engineer's Dept.

Mr. E. G. Horton, Assistant to District Engineer, Northampton, to be District Engineer, Northampton.

Mr. W. A. Robertson, Resident Engineer, Dagenham Dock, to be Assistant to District Engineer, Northampton.

Mr. J. N. Peck, District Engineer, Blackburn, to be District Engineer, London.

Mr. C. Haysey, Draughtsman, London District, to be Assistant to District Engineer, London.

Chief Commercial and Chief Operating Managers' Depts.

Mr. T. D. L. White, Goods Agent, Edge Hill, to be Goods Agent, Canada Dock and Bankfield.

Mr. J. A. Gaukrodger, Livestock Agent, Stanley (Cattle), to be Goods Agent, Edge Hill.

Mr. A. W. Burgess, Goods Agent, Sheffield (Queen's Road and City), to be Goods Agent, Sheffield (Wicker).

Mr. G. F. Morton, 1st Operating Clerk, Sheffield (Wicker), to be Goods Agent, Sheffield (Queen's Road and City).

Mr. J. W. Longhorn, Goods Agent, Huddersfield, to be Joint Goods Agent, Huddersfield (L.M.S.R. and L.N.E.R.).

Chief Operating Manager's Dept.

Mr. G. Rigby, Running Shed Foreman, Burton-on-Trent, to be District Locomotive Superintendent's Assistant, Monument Lane (for Aston and Monument Lane).

Labour and Establishment Office

Mr. W. W. Sharp, Assistant Editor, *L.M.S. Magazine*, Euston, to be Editor, *L.M.S. Magazine*, Euston.

Chief Accountant's Department

Mr. C. H. Sutherland, Investigator, Executive Investigation Office, Euston, to be Assistant, Chief Accountant's Department, Euston.

Mr. T. C. Bird, Clerk-in-Charge, Audit Section, Chief Accountant's Department, Euston, to be Assistant (Audit), Chief Accountant's Dept.

Mr. William Whitelaw, Chairman of the London & North Eastern Railway and President of the Institute of Transport for the current year, has been a railway director since 1898 and was Chairman of both the Highland and North British Companies prior to being unanimously elected Chairman of the London & North Eastern Company when it was formed and absorbed the North British Railway in 1923. Born in 1868, he was educated at Harrow and Trinity College, Cambridge, and

the Chairmanship of the Highland Company, but remained with that board as Deputy Chairman and resigned his seat on it only in 1918. During his Chairmanship he was largely responsible for placing the Highland finances—which had previously been at a low ebb—upon a sound basis. In fact, breadth of outlook, thorough acquaintance with the details of railway working, sound business ability and remarkable qualities as a leader and chairman have all combined to mark

Mr. Whitelaw's pre-eminently successful career. It may be noted that Mr. Whitelaw is now the doyen of the Chairmen of the four "group" British railways. In addition to the main line railways, he is, or has been Chairman of the Gifford & Garvald, Samana & Santiago (Santa Domingo), Glasgow Subway and Forth Bridge Railways and of the Glasgow Harbour Tunnel Co. Ltd. Among his directorates is the Bank of Scotland, and he is one of the L.N.E.R. representatives on the Cheshire Lines Committee. From time to time Mr. Whitelaw has also been President of the Railway Benevolent Institution and of the Railway Convalescent Homes.

COLONIAL OFFICE APPOINTMENTS

The Secretary of State for the Colonies has recently made the following appointments:—

Mr. H. K. Bostock, Divisional Superintendent, to be Superintendent of Motive Power and Equipment, Nigerian Railway.

Mr. G. S. Simmons, Assistant Chief Mechanical Engineer, to be Chief Mechanical Engineer, Gold Coast Railway.

Mr. J. W. Fawcett, Dr. W. H. Hatfield and Mr. A. Matthews of Thomas Firth & John Brown Limited, Sheffield, have been elected Directors of that firm.



Mr. William Whitelaw,

Chairman of the L.N.E.R. and President of the Institute of Transport, 1933-34

represented Perth City in the House of Commons, 1892-95. His evidence before the Royal Commission on Railway Reconciliation Boards may be remembered. In 1898 he joined the Board of the Highland Railway, was elected Deputy Chairman in 1900 and Chairman shortly afterwards. Mr. Whitelaw also became a Director of the North British Railway in 1908, Deputy Chairman in 1910 and Chairman in 1912. In view of the responsibilities devolving upon him in the latter capacity, he was then obliged to resign

Mr. J. E. Calverley, M.I.E.E., has been appointed Chief Engineer and Manager, Traction Department, English Electric Co. Ltd., in succession to Mr. C. E. Fairburn, M.A., A.M.Inst.C.E., appointed Electrical Engineer, L.M.S.R.

Mr. E. W. Higginson, Chief Clerk to the District Goods Manager, Birmingham, G.W.R., has been appointed Chief Clerk, Chief Goods Manager's Office (Claims), Paddington.

Mr. James Calder, who, as announced in our issue of June 8, is retiring this week from the position of General Manager for Scotland, L.N.E.R., was born in 1869, educated at Shotts and Hamilton and joined the North British Railway in 1883. After gaining experience at Hamilton, Lennoxton and Craigendoran stations, he was transferred to the District Superintendent's office, Glasgow, in 1887. Mr. Calder next held an appointment in the General Manager's office, Edinburgh, from 1892 to 1903 and in the latter year was promoted to be Assistant to the General Manager. In 1913

Auditor, and this position he held for 10 years. In 1916 he became Chief Clerk in the Coaching Department of the Audit Office, where he was responsible, under the Audit Accountant, for the supervision of the audit check on all passengers and parcels revenue, and of accounting involved in the conveyance of troops and stores during the war. In 1920, Mr. Mills was transferred to the Chief Accountant's office as Special Auditor of Accounts of Spending and Stores, and for the preparation of the N.B.R. Government Compensation Accounts. At the amalgamation, he took charge of the section

L.N.E.R. STAFF CHANGES

The L.N.E.R. announces the following appointments in its Hotels Department:—

Mr. J. L. Meadowcroft, Manager, Great Eastern Hotel, Parkeston Quay, to be District Manager, Royal Hotel, Grimsby, in succession to the late Mr. R. Smith.

Mr. C. W. Murphy, District Refreshment Room Manager, Manchester, to be Manager, Great Eastern Hotel, Parkeston Quay, in succession to Mr. J. L. Meadowcroft.

Mr. W. A. Tamsitt, Manager, Yar-



Photo by]

[Lafayette

Mr. James Calder,

General Manager, North British Railway, 1918-23,
and for Scotland, L.N.E.R., 1923-34



Photo by]

[Lafayette

Mr. George Mills, F.R.S.S., M.Inst.T.,

Appointed Divisional General Manager,
Scottish Area, L.N.E.R.

he was appointed Assistant General Manager, becoming General Manager in 1918. At the time of the amalgamation, January 1, 1923, Mr. Calder was appointed General Manager, Scotland, L.N.E.R., the position from which he now retires.

Mr. George Mills, F.R.S.S., M.Inst.T., who, as announced in THE RAILWAY GAZETTE of June 8, has been appointed to succeed Mr. James Calder, takes the title of Divisional General Manager, Scottish Area, L.N.E.R. Mr. Mills was born in Edinburgh, and joined the North British Railway in 1895. After 11 years in the Audit Accountant's Department, he was appointed Station

dealing with rates, statistics, and claims in the Chief General Manager's Department, L.N.E.R., and in 1927 became Assistant to the Chief General Manager (Rates and Statistics). It was in 1929 that Mr. Mills was promoted to be Assistant to the Goods Manager, Southern Scottish Area, and in 1931 he was appointed Goods Manager of that area, the post he now relinquishes to become Divisional General Manager, Scottish Area.

We regret to record the recent death at the age of 62, of Mr. Arthur Turnbull, who, prior to his retirement in June, 1932, was District Engineer, Crewe, L.M.S.R.

borough Hotel, Grimsby, to be Manager, Great Northern Hotel, Leeds, in succession to Mr. A. Pascoe, who will shortly retire from the service.

Mr. W. A. G. Rimmington, Manager, Great Northern Station Hotel, King's Cross, to be Manager, Yarborough Hotel, Grimsby, in succession to Mr. W. A. Tamsitt.

Mr. T. C. Fayers, Manager, Sandringham Hotel, Hunstanton, to be Manager, Great Northern Station Hotel, King's Cross, in succession to Mr. W. A. G. Rimmington.

Mr. R. S. Howes, London District Refreshment Room Manager (Great Eastern Section) to be Manager, Sand-

ringham Hotel, Hunstanton, in succession to Mr. T. C. Fayers.

Mr. T. B. Cox, who, as announced in THE RAILWAY GAZETTE of June 8, has been appointed Assistant Accountant, G.W.R., has been placed in charge of the Audit Section of the Chief Accountant's Office. He began his railway career in 1886, in the Passenger Department of the Audit Office, the latter being then a separate organisation from the Chief Accountant's Office, with which it was merged in 1920. In 1896 Mr. Cox was transferred to the Agreements Department, of which he took charge in 1917, after having served in each of the sections of the Department, which principally deals with the apportionment between the various companies of the receipts on "foreign" traffic. When the railways were released from Government control in August, 1921, the reorganisation of the Agreements and Statistical Departments, which, owing to control conditions, had fallen from a pre-war staff of 121 to 13, was carried out by Mr. Cox, as also was the further adjustment necessitated by the grouping arrangements under the Railways Act, 1921. In 1926 he was appointed Assistant to

the Chief Accountant and combined the supervision of his old departments with other important duties under the Chief Accountant.



Elliott

[C. Fry]

Mr. T. B. Cox,

Appointed Assistant Accountant, G.W.R.

The following have been elected Corporate and Non-Corporate Members of the Institute of Transport as from May 14:—

Corporate Members: Messrs. R. Carpmal, Chief Engineer, G.W.R.; G. A. W. Nicholas, Director, Railway Institute, New South Wales; and W. H. H. Young, M.C., Divisional Superintendent, East Indian Railway.

Corporate Associate Members: Mr. D. B. Parsons, Buenos Ayres & Pacific Railway.

Non-corporate Graduates: Messrs. S. W. N. Bennett, Central Argentine Railway; C. Birch, L.N.E.R.; J. Gilbert, L.M.S.R.; H. L. Hardie, L.M.S.R.; W. E. Hogben, Southern Railway; Ghulam Hussain Khan, Nizam's State Railway; A. P. Mutch, South African Railways; A. W. Parsons, L.M.S.R.; B. W. Raby, Central Argentine Railway; A. H. Stevens, Southern Railway; M. J. F. E. Tanguy-Desmarais, South African Railways and Harbours; and F. E. Whiting, L.N.E.R.

Non-corporate Students: Messrs. G. Fernyhough and J. G. Hamper, L.P.T.B.; H. A. Morgan and B. A. Radford, South African Railways and Harbours; R. G. Payten, L.N.E.R.; R. H. Potter, G.W.R.; H. M. Powley, Southern Railway; and A. J. Wood, New South Wales Government Railways.

M. E. Duchatel, Ingénieur-en-Chef du Matériel et Traction (Chief Mechanical Engineer) C. de fer de l'Est, France, has retired and M. J. Loizillon, Ingénieur-en-Chef Adjoint, has been appointed to succeed him.

L.N.E.R. Train Cruises

Passengers' Appreciation of the Northern Belle

The first of the four Northern Belle train cruises which the London & North Eastern Railway is running this year was completed last week. A request was received from the passengers for an opportunity for one of their number to express to the company and the train staff their appreciation of the cruise. This took place after dinner at the North British Station Hotel, Edinburgh, on Thursday, June 7, and at the passengers' request, representatives of the train staff, including the conductor and chef, were also present, in addition to Mr. M. A. Cameron, Mr. J. W. Dunger, Mr. G. Gibb and Mr. G. J. Woodhouse, who had been in charge of the cruise. Sir John Jack-

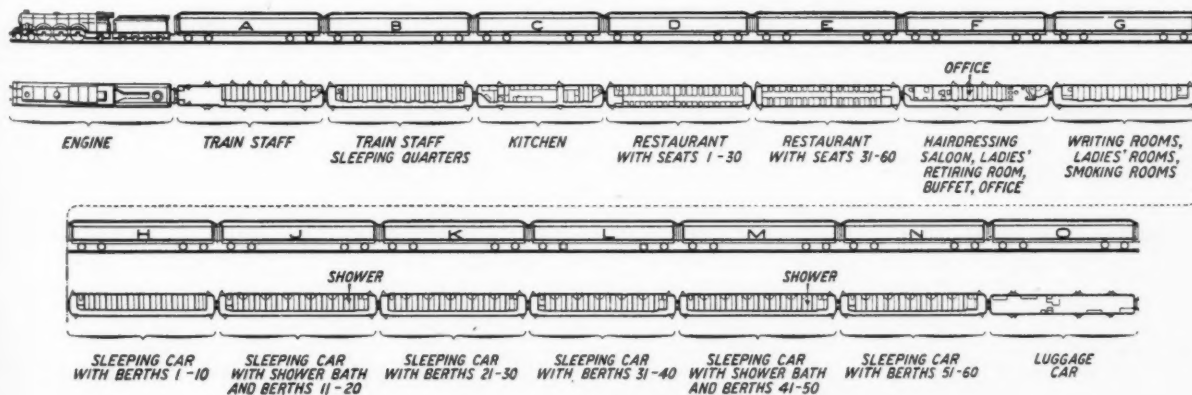
son acted as spokesman, and in the course of a much applauded speech asserted that the company had given the passengers more than they had paid for and suggested that the passengers should return thanks by going to their homes and spreading the fame of the Northern Belle. He went on to say that the meals served on the train were equal to those obtainable at the best west end hotel, and that the general service throughout appeared to him to be similar to that given to Royalty.

The train, all the coaches of which have recently come out of shops, is externally imposing and symmetrical in appearance. Internally, brilliantly

lighted, newly upholstered, and its saloons with flowers tastefully arranged on each table, it reflects the enthusiasm with which the L.N.E.R. officers and staff entered into the spirit of this enterprise.

As will be seen from the plan of the train, its formation is the same as on the three cruises last year, and its total weight is 507 tons, the length of the day portion being 422 ft. and the night portion 440 ft.

When occasion arises the train is split into two portions, the day portion including restaurant cars, buffet, hair-dressing saloon, writing, smoking and ladies' rooms, an office, and quarters for the staff, and the night portions, six first-class sleeping cars, some of which are provided with shower baths, and a brake van. One of the chief difficulties to be overcome was the question of sanitation when the train



Plan of the Northern Belle cruising train

Scenes on the Northern Belle Train Cruise

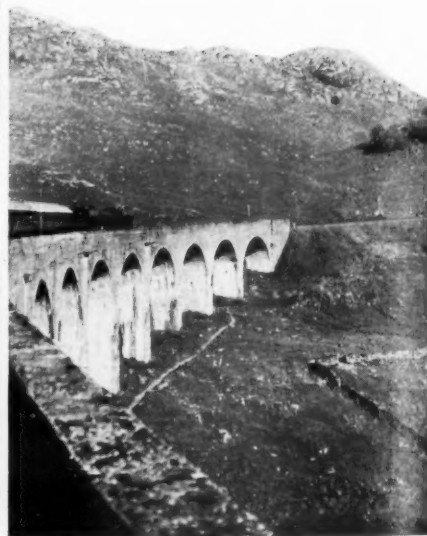


One portion of the Northern Belle cruising train on the West Highland line



Above: At Ardlui

Below: At Barnard Castle



On Glenfinnan viaduct

was stationary for long periods in stations and this was most ingeniously and simply provided for.

To attend to the requirements of 30 passengers and for the internal cleaning of the train, a staff of no fewer than 27 is necessary, comprised as follows:—

Company's representative in charge and assistant	2
Hotels representative in charge of catering	1
Sleeping car attendants	6
Chambermaids	2
RESTAURANT CARS	
Conductor	1
Attendants	4
Cook	1
Assistant cook	1
Car cleaner	1
CARRIAGE CLEANERS	
Male	2
Female	2
Electrician	1
Buffet car attendant	1
Ladies' room attendant	1
Hairdresser	1
	27

Based on the experience gained with the three cruises last year, considerable changes have been made on last year's itinerary, and in our opinion, if it is decided to continue these cruises in the future, it would be difficult to improve it. The cruise has been so arranged that for three nights out of the seven the train is stationary, and on the remaining four nights it is at rest for a portion of the time. During its week's tour the train mileage is 1,400 apart from empty mileage. The mileage of the road motor tours is 400 and steamer trips, &c., 200.

Below we give the itinerary of the four tours:—

Friday.—9.0 p.m. Leave King's Cross for Wetherby (Yorkshire), arriving at 1.30. Saturday morning. The Northern Belle rests overnight at Wetherby.

Saturday.—Breakfast on the train. 9.40 a.m. Leave Wetherby for Harrogate, arriving 10.0 a.m. 10.10 a.m. Leave Harrogate station by motor coach for Bolton Abbey, Appletreewick and Burnsall, arriving back in time for lunch at the Grand Hotel, Harrogate, 3.0 p.m. Leave Grand Hotel by motor coach for Brimham Rocks, Studley Royal, Fountains Abbey and Ripon. Tea at the Spa Hotel at Ripon, after which a short journey is made to Ripon station, where the Northern Belle is rejoined. 6.45 p.m. Leave Ripon station for Barnard Castle (Teesdale). Dinner on train.

Sunday.—10.0 a.m. Leave Barnard Castle by day coaches for Penrith. Breakfast on train. 11.50 a.m. Leave Penrith station by motor coach for Keswick. 12.50 p.m. Arrive Keswick, lunch at the Keswick Hotel. 2.30 p.m. Leave the Keswick Hotel by motor coach for tour through English Lake District. 4.40 p.m. Afternoon tea at Ullswater. 7.0 p.m. Leave Penrith station for Edinburgh and Corstorphine, the train travelling via Carlisle and the Waverley route. Dinner en route. 10.28 p.m. Arrive Corstorphine, where the train stands overnight.

Monday.—Breakfast on train. 10.30 a.m. Leave Corstorphine by motor coach for the Forth Bridge, a visit to Edinburgh Castle, and down the "Royal Mile" to the Palace of Holyroodhouse. 1.30 p.m. Lunch at the North British Station Hotel, Edinburgh. Free afternoon. The Northern Belle is brought to Edinburgh (Waverley station) at 2.15 p.m. and is accessible to passengers throughout the day. 5.30 p.m. Two hours' motor coach tour of greater Edinburgh. 8.0 p.m. Dinner at the North British Station Hotel, Edinburgh. 11.10 p.m. Leave Edinburgh (Waverley station) by the Northern

Belle for the Inverberrie branch, near Montrose, arriving at 1.55 a.m. The train stands until 6.32 Tuesday morning, when it proceeds to Aberdeen.

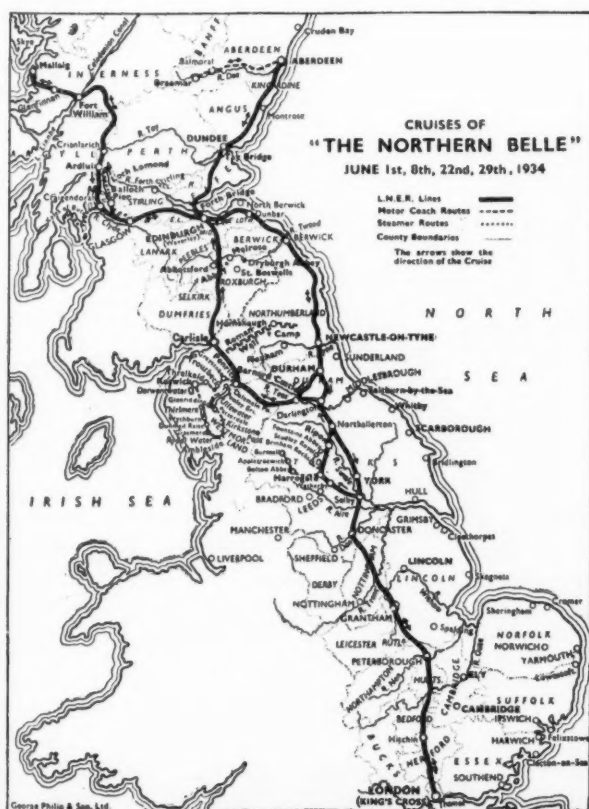
Tuesday.—8.0 a.m. Arrive Aberdeen. Breakfast at the Palace Hotel. 10.30 a.m. Leave by motor coach for Braemar, through Royal Deeside. Lunch and tea at Braemar. After lunch a short motor coach outing to the famous Linn O' Dee. 5.0 p.m. Leave Braemar for Aberdeen. 7.30 p.m. Dinner at Palace Hotel, Aberdeen. 11.0 p.m. Leave Aberdeen by the Northern Belle for Dalmeny, arriving 2.9 a.m. Wednesday morning, where the train stands until 7.43 a.m.

Wednesday.—9.7 a.m. Arrive Balloch pier where the Loch Lomond steamer is joined. Breakfast on the steamer. 11.45 a.m. Steamer arrives Ardlui pier. 11.55 a.m. Leave Ardlui station—lunch being taken as the train passes alongside Loch Treig. 2.16 p.m. Arrive Fort William—where the night carriages are available. 2.45 p.m. The Northern Belle day carriages make a special journey to Mallaig. 4.15 p.m. Arrive Mallaig. 4.55 p.m. Leave Mallaig. Tea on train. 6.41 p.m. Arrive Fort William. 7.30 p.m. Dinner on the Northern Belle at Fort William, overlooking Loch Linnhe. The train rests overnight at Fort William.

Thursday.—8.40 a.m. Leave Fort William station. Breakfast on train. 12.5 p.m. Join the steamer for a sail down the famous Firth of Clyde and round the Kyles of Bute. Lunch and tea on board. 6.40 p.m. Arrival of steamer back at Craigendoran pier. 6.55 p.m. Leave Craigendoran by the Northern Belle. 8.21 p.m. Arrive Edinburgh (Waverley station). Dinner at the North British Station Hotel. The Northern Belle stands at Waverley station all the evening, and may be joined at any time up to 12.0 midnight.

Friday morning.—12.5 a.m. (Midnight Thursday). Leave Edinburgh (Waverley station) en route for Dunbar, where the Northern Belle stands for a short time before proceeding to London (King's Cross). Breakfast on the train. 10.45 a.m. The cruise ends with the arrival of the Northern Belle at King's Cross.

PEDESTRIAN CROSSINGS.—When the first sixty of the marked crossings for pedestrians in Holborn and Westminster streets were brought into use on Monday last, provisional regulations also came into effect stipulating that pedestrians at those points must not obstruct vehicles going straight ahead and that vehicles turning at right angles must give way to pedestrians using the crossings. Drivers are called upon to use due care and breaches of the regulations may be met with a fine up to £5, while for pedestrians, similarly convicted, the maximum penalty is 5s.



The Institute of Transport Congress at Leeds

Mr. William Whitelaw's genial and enthusiastic presidency of the Leeds Congress, followed closely by the notable efficiency of all the working arrangements, were the outstanding features of a very useful and enjoyable function which, opened on Wednesday afternoon, June 6, was concluded on Saturday, June 9. Last week we outlined the main features of the programme and gave abstracts of two of the papers. This week we give a summary of the third paper, and also of the discussions on all three.

Immediately before the reading of Dr. Fenelon's paper, the Lord Mayor of Leeds (Mr. A. E. Wilkinson) welcomed the Institute to the City of Leeds, and wished its Congress success. The fact that the President was Mr. William Whitelaw, the Chairman of the L.N.E.R., was not only an indication of the standing of the Institute but also emphasised the close connection of the railway interest with its work. He pointed out the important position the City of Leeds occupied in the national problem of transport, served as it was by two of the great railway companies, an up-to-date system of canals, modern roads carrying a growing service of motor vehicles, and 128 miles of tramway track. Recently an aerodrome for Leeds and Bradford had been founded at Yeadon. Last year the combined services of the Leeds Transport Department had run 16,000,000 miles and carried 168,000,000 passengers. Sir James Black Baillie, on behalf of the University of Leeds, in whose premises the meetings were being held, also extended a very hearty welcome to the Institute, whose business he assumed was to investigate the most economical form by which, in the interests of the convenience and safety of the public, energy, space and time could be manipulated.

Apart from the papers and discussions, the time of the delegates was very fully occupied. Indeed, as Mr. Whitelaw remarked at the opening session, every possible arrangement seemed to have been made for the benefit of those participating in the Congress except for their sleep. Space will not permit of detailed accounts of all the functions and excursions undertaken, but the three in which the President took part may be briefly referred to. The first was the visit to the new all-electric signal-box at Thirsk and the permanent way reclamation depot at Darlington. A special train was provided by the L.N.E.R. consisting of the attractive new green and cream tourist carriages and hauled by the Armstrong Whitworth 2-6-2 Universal diesel locomotive, to which reference was made in our issue of June 1. The weight of the train was 240 tons, and the performance of the locomotive was such that, despite one or two delays

on the way, punctual arrivals were always effected. At Thirsk, besides the signal-box, demonstrations were provided of a portable mechanical ballast riddle, a crossing welding plant, a platelayer's rail motor, and a sleeper boring and screwing plant. Everybody was much impressed with the extraordinarily efficient arrangements represented by an up-to-date permanent way reclamation depot at Darlington, a plant unique in British railway practice. A demonstration was also provided at Darlington of the Morris track-layer of the L.N.E.R.

The following day, Friday, the President accompanied the delegates on a visit to the Doncaster works of the L.N.E.R., where they were met by Mr. H. N. Gresley, the Chief Mechanical Engineer, and Mr. R. A. Thom, Mechanical Engineer (Doncaster). Again delegates were impressed by the up-to-date plant and tools, and by the exhibition of the latest L.N.E.R. locomotives, including the new 2-8-2 express engine, *Cock o' the North*.

The final excursion which was honoured by the presence of Mr. Whitelaw was that down the Aire and Calder Navigation on Saturday. This, by providing a demonstration of the most modern methods of water borne haulage and dock equipment, was one of the most valuable experiences of the whole Congress. Lord Deramore, the Chairman, Sir John Eaglesome, the Managing Director, and other officers of the Aire and Calder Navigation, accompanied the delegates on this trip.

DISCUSSIONS ON PAPERS

1. Requirements of Industry

Two of the three papers read before the Institute of Transport Congress at Leeds were summarised in THE RAILWAY GAZETTE of June 8, and an abstract of the third appears on page 1067 of this issue. Introducing the discussion on the first paper, "The Transport Requirements of Industry," presented by Mr. C. A. Lambert (General Manager, Bolsover Colliery Co. Ltd.) on June 6, Mr. William Whitelaw, the President, referred to the author's plea that the railways should be permitted to close those of their canals which can no longer be worked profitably. Mr. Whitelaw explained that some canals which were no longer of value as a means of transport were supplying other useful services. He knew of one which provided all the water required by traders in the area, some of whom had a 99 years' agreement with the canal company permitting them to draw upon it. The canal problem involved other issues than those of the railways' own convenience.

Mr. C. le M. Gosselin (a Vice-President), who opened the discussion, criticised Mr. Lambert's use of the terms "roadable" and "non-road-

able." He could quote "roadable" goods which had become "railable" and might in future be "airable" or, by a reversion to type, "canalable."

He was of the opinion that the nationalisation of transport would have many disadvantages, but it was impossible to close one's eyes to the fact that there was a growing tendency for nations to organise their industries on a national basis.

A valuable addition to the work accomplished by the Salter Commission would be a scientific report on the effect of speed and weight on our modern roads. Certain of the present regulations were ridiculous. Reviewing the paper as a whole, he said he thought the vital transport question to-day was whether or not the bulk of this country's traffic would pass from the professional transport agencies into the hands of the traders themselves.

Mr. F. Smith expressed the view that while it was true that the railways were indispensable to the nation as a whole, it was possible for individual traders or groups of traders to be independent of them. His own business possessed great possibilities for regional production. If transport charges became too heavy it was a simple matter to shift the venue of production and thus eliminate them. He had always been a critic of the method of fixing railway charges, although he admitted there might have been no alternative in the days of monopoly. Now that other and equally attractive forms of transport were available, a revision was called for.

Mr. A. Hastie then put forward the fact that the tardy realisation of heavier train and wagon loads had not been due to lack of initiative on the part of the railways. As far as the transport of coal was concerned, the obstruction was still the equipment of the collieries, which were often unable to deal with wagons of more than 8 tons capacity.

Mr. W. A. Willox said that he wished to point out that in enumerating the available forms of transport, Mr. Lambert might well have looked into the near future and included transport by pipe and wire. There was no doubt that coal would eventually be converted into gas, oil, and electric energy at the pithead and its power distributed by pipes and cables. Coal traffic by rail would eventually be eliminated, but he thought that the inevitable expansion of purchasing power would create a demand for the carriage of passengers and commodities which could be met only by all forms of transport working at full pressure.

Sir John Eaglesome (former Vice-President) outlined the history of transport by road, water, rail and again road. He referred to coastal transport as a form which had always been instrumental in keeping down railway rates. A considerable proportion of coal traffic, however, had now been diverted from water to road. But the roads could not compete with rail or

water in the conveyance of long distance coal or coal for shipment.

Mr. W. H. Gaunt (former Vice-President) mentioned the great advance made by the railways in passenger-parcels traffic and hoped that the companies would regard it as of sufficient importance to justify the introduction of fresh facilities for handling it. At present there were no permanent conveyors or sorting arrangements at any of the big London termini for dealing with it expeditiously. The railways should recognise the permanent value of such traffic and act accordingly. He added that the use of light motors should enable their free cartage boundaries to be considerably extended.

Mr. T. H. Charlton said he condemned the principle of competition between the various forms of transport and attributed the present position of the railways to inevitable obsolescence. He advocated the institution of a national authority to co-ordinate all transport undertakings, both monopolistic and competitive.

Mr. G. J. Ponsonby said that apart from demanding satisfactory quality and price in transport services, traders wanted an appropriate mixture of the two. At present this was difficult to obtain, as quality and price were under separate control.

Others who spoke were Messrs. H. Amor and J. L. S. Stoneman.

Mr. C. A. Lambert, replying to the points raised in the discussion, agreed with Mr. Charlton that the railways had become obsolete, but only financially, and not as a means of transport. Sir John Eaglesome had stood up for coastwise transport and he, personally, had not suggested that it should be got rid of. He admitted that railways—a necessary form of transport—were rather expensive, and he wished to see them made cheaper for the heavy industries. He hoped that the railways would profit by the latitude allowed them in the matter of agreed charges in attracting to themselves more heavy traffic. Mr. Ponsonby had asked for co-ordination between the interests of price and service. What he (Mr. Lambert) had intended to say was that heavy industries should be prepared to accept slower service if it meant lower charges. He suggested that railway services should provide passenger trains, fast goods trains and special slow heavy industries trains at very low rates.

2. Passenger Transport Outside London

The President, in proposing a vote of thanks to Dr. Fenelon, whose paper, "The Public Control of Passenger Transport Outside London," was summarised on page 1020 of last week's issue, welcomed what he had said about co-operation, especially regarding the advantage of purchasing in bulk, the value of which had been demonstrated in railway service. He had one warning to give, however, and that was the danger of over-centralisation in such things.

Mr. C. E. R. Sherrington pointed out that the public passenger services in this country were profitable, or, at least, self-supporting. The net receipts of the tramways in 1932-33 showed a ratio to capital expenditure of roughly 4½ per cent. while British omnibuses paid dividends of 12 and 15 per cent. plus bonuses. He did not know of any French passenger service—air, ocean, railway, tramway or bus—paying its way. He could not altogether agree with Dr. Fenelon regarding amalgamation because by centralisation the initiative and individual invention present in small undertakings might be lost. He felt inter-working agreements might give better results.

Mr. Ashton Davies submitted that any scheme of public control of passenger transport outside London must carefully avoid any undermining of the railway position. Railways would not be able to carry goods which were essential at the rates at which they were carried to-day if passenger traffic was taken away from them. It must be remembered, too, that the railway companies by association with omnibus undertakings and certain municipalities had formed a very important link in passenger transport outside London which must be considered. Further, Mr. Ashton Davies submitted that municipalities, under a scheme of amalgamation or co-operation, could not be allowed to go outside their protected interests and commence a new attack on services which were satisfactory and giving beneficial results.

Mr. J. McDonnell referred to the satisfactory results secured from the inter-working scheme in the Midlands in which 15 or 16 towns benefited.

Mr. C. S. Dunbar criticised this system as not being absolutely to the advantage of the travelling public as in some cases it was necessary to

change from tram to bus and then to trolleybus. He asked whether the time had not come for a series of provincial administrations to be responsible for the control, if not the operation, of the large scale services like transport, drainage, gas and electricity.

Mr. G. J. Ponsonby suggested that while Dr. Fenelon put forward two alternatives, whether or not there was an inevitable movement towards uncontrolled monopoly, there was a third course, that of allowing competition to have its effect.

Mr. Vane Morland said that as a municipal officer he never had the slightest difficulty in making agreements with the large responsible companies which could be considered as only in the public interest. In Leeds they had already intimated to their neighbours that they were ready to discuss any form of co-ordination or agreement or merger. The difficulty now was in trying to find some means of agreement with the multitude of small people.

Mr. F. G. Chapple said that in many of the discussions regarding passenger services one party—the travelling public—was left out. He also pointed out that while the Road Traffic Act had given the Traffic Commissioners control of buses, the trolleybus was outside that control.

Mr. A. J. McIntosh suggested the time was coming when the necessary co-ordination would be effected through an extension of the powers of the Traffic Commissioners; their offices might become virtually district transport offices for the organisation of the longer distance services by all forms of transport, including rail.

Dr. Fenelon had only time to reply briefly to one or two points but promised to deal with the others in writing.

The Price Issue in Public Utility and Monopolistic Industries*

The existence of monopoly was observed by Adam Smith as early as 1776, but it remained for the economists of the nineteenth century to see the practical effects of the system as exemplified in the development of the railway and to evolve a new theory of economics in place of the then current ideas on competitive industry. Prof. Jones summarised the theory of competition as holding that cost was the automatic regulator of prices, thanks to competition among producers. If exceptional demand for a commodity raised its price, the additional capital attracted to that industry by the hope of profits would increase the supply and so bring the price back to the cost level. Similarly, a fall in price due to over-production would be compensated by producers turning their attention to other industries or commodities, a consequent reduction of supply and a rise in prices.

The competitive system was long accepted as beneficial to the community. Both consumer and worker

were held to be safeguarded against exploitation. The appearance of monopoly in the shape of the railway system, however, introduced an element which could not be made to conform to the existing theory and it was accordingly regarded as a menace to the public, whose interests could be safeguarded only by interference on the part of the public authorities.

The railway problem was the first of many to which the competitive theory could not be applied. It was based upon assumptions which ceased to hold good as industry developed. Under modern conditions, the uniform price forced by competition and charged to all consumers irrespective of the purpose for which the commodity was used became an economic impossibility. Prof. Jones pointed out that in many spheres of industrial activity price differentiation was now regarded as

* Summary of a paper read by Prof. J. H. Jones, M.A., Ph.D., Professor of Economics, University of Leeds, at the Institute of Transport Congress at Leeds, on June 8.

desirable, if not inevitable. In the old days the question of equity was to a great extent left to look after itself, in the pious hope that such a condition would follow automatically as a result of the force of competition. With the decline of the competitive system, equity came once more into the forefront of public discussion. In the case of monopolistic enterprises, opinion is satisfied if prices are fixed at such a level that the return upon capital is not unreasonably high, but as to what constitutes a reasonable return there is a lack of definition. Prof. Jones considered that the community could not be trusted always to take the long view. In the event of the railways winning back the position of being able to pay a large return on share capital, the fact that for years no dividend at all had been paid would be overlooked and there would be an immediate clamour for reduced rates.

The Ideal of Public Service

But if the public outlook is narrow, there is evidence of a new attitude on the part of company directors. Their position is changing as a result of the development of large-scale enterprise. Their personal holdings in the concerns they control have in many cases become so insignificant in comparison with the total capital that they are coming to regard themselves more and more as trustees of public funds. Prof. Jones thought that the infusion of the ideal of public service into private enterprise was a hopeful feature of modern industry.

In considering the relation of the enterprise to the consumers of its products, it must be recognised that there is a fundamental difference between discrimination and differentiation in fixing prices. For such an enterprise as a railway, in which the "cost of idleness" is extremely heavy and the load factor of supreme importance in determining charges, a differential price system is inevitable. Prof. Jones congratulated the railway companies on their economic orthodoxy in offering inducements to travellers in the form of cheap fares during slack periods, but admitted that this might be as much the result of road competition as of theoretical argument. Whatever the cause, they have attempted to achieve the nearest practicable approach to a constant and uniform load.

Standard of Efficiency

Under modern conditions, the simple test of cost incurred in supplying a unit of service became unreliable in measuring the efficiency of an enterprise. Prof. Jones said that it would be agreed that the first business of an enterprise or industry was to make itself efficient. It was up to the nation to see that the fruits of efficiency were secured for the public and that the industry was run in a manner fair to all those concerned in it. But there were still conflicting opinions as to the obligations of public utility services and monopolistic

concerns generally. There was a common and fallacious assumption that an undertaking was justified in working on the understanding that it should in all cases avoid specific loss. It was this attitude on the part of the railways in the nineteenth century which made it necessary to impose the running of "parliamentary" trains by law.

The uncertainty that existed in this direction was an argument for instituting further research into current industrial problems. Prof. Jones said that the purpose of his paper was not to offer solutions but to stimulate inquiry. It seemed to him that many of the books which had been written on transport economics did not take into account the fact that efficiency could no longer be measured by the balance maintained by an organisation between its own ends and the convenience of the public. New standards of efficiency would have to be defined and that factor would have to be measured by new and far more elaborate costing systems.

Prof. Jones asked for a lead in these matters from the Institute of Transport itself. He concluded his paper by saying: "I venture to express the hope that the Institute will not only admit the need for research but also seek the opportunity to initiate and foster collective research into the wider economic issues that have been created by the growth of public utility and public enterprise. These wider issues are raised by the price issue. The price problem is the problem of equity."

The Discussion

The discussion on the paper by Prof. Jones, "The Price Issue in Public Utility and Monopolistic Industries," was opened by Mr. C. E. R. Sherrington, who said that it was wrong to-day to think of a public utility service as endeavouring to make profits in order to pay high dividends. It had a social responsibility, which was to obtain sufficient net revenue to attract further capital, without which it could not keep up to date. He had been deeply interested in the remarks of Prof. Jones on the load factor and considered that it was a question of increasing importance to the railways, which now had their peak loads concentrated at week-ends. It was economically essential to distribute the demand more evenly and this would entail the reorganisation of the national life.

Major H. A. Watson said that the railways were more interested in economies than economics. Such a policy had once saved the nation from bankruptcy and he hoped to see it practised abroad as well, so that the rest of the world would eventually have more money to spend in Great Britain. With regard to charges, he said that the railways had never yet achieved a system which made sure that no one service was not helping

to pay for another. The principle of distance as the basis of fixing rates had been imposed by the government in 1892, and it seemed strange that this decision should have been made at a time when the Post Office was charging a penny to carry a letter from London to Bedford or London to Wick.

Mr. E. P. Bates remarked that all three papers read at the Congress revealed that the speakers had mentally abandoned the old ideas of free trade and protection and were tending towards systems of planned economy or planned development. The community as a whole did not know what it wanted and was too ready to adopt with enthusiasm whatever was cunningly thrust upon it. It was the duty of those who were attempting to formulate a new code of national or business ethics to study hard and to build upon their conclusions, not to snatch at attractive theories and then rake up arguments in their favour. The world waited upon the economists to learn which way it should move.

Mr. W. A. Willox suggested the possibility of eliminating from the price of ultimate commodities what Prof. Jones described as the cost of idleness, which apparently was the same thing as overhead charges, and thus reduce price to cover direct charges only. If this were achieved without entailing sacrifices, as he suggested it might be, the paradox of poverty in the midst of plenty would have been eliminated. It was a possibility the economists would do well to investigate.

Mr. A. J. McIntosh outlined the process of eliminating competition which had been steadily gaining speed. Something approaching monopoly appeared inevitable in many industries, and particularly in transport. But the absence of the competitive element seemed to imply the disappearance of an important incentive to efficiency. Some other incentive would have to be found.

Mr. T. H. Charlton said that the interests of producer and consumer in transport and utility services would have to be co-ordinated. The user should enjoy the benefit accruing from such industries and there ought to be a National Transport Board to see that he did so.

Replying to the speakers, Prof. Jones said that his paper had merely stated the tendencies of the time and was not to be regarded as a defence of planned economy. He had been asked to define efficiency and would say that it was the conservation of human energy. To use two men on a job one could do or to fail to make use of available sources of production was inefficiency. He did not agree that the world was suffering from the paradoxical disease of poverty in the midst of plenty. There was no such abundance of wealth as was so often suggested. One speaker had raised the question of incentive. The incentive, to his mind, was to be found in the change of the character of the control which he had indicated in his paper.

Ministry of Transport Accident Report

Camden: London Midland & Scottish Railway, January 1

The accompanying sketch shows the lines and signals concerned in this collision, which took place about 6.43 p.m. on the up slow line at Camden No. 1 box between two electrically-operated passenger trains from Watford to Euston. The first of these trains, hereafter referred to as the 5.10, was standing at No. 1 box starting signals when it was run into by the following train—the 5.24. A feature to be noted is that these starting signals are carried on a gantry over the up fast and up slow lines and the arms and lights are therefore at more than the average height above rail level. The next box in advance is Euston No. 4, and the starting signals in question are released by the block instruments at line clear, but not for one acceptance only. Track circuit, on each line ahead of those signals, however, locks them through the block instruments; the indications of the latter are placed and maintained as *train on line* by such occupation. The mechanical locking in No. 1 box is also such that the starting signals must be at "danger" before the home signal levers can be moved from normal to reverse.

Three other features must be noted:—(1) While there is track circuit on the up fast line from No. 1 box up to No. 1 box starting signal, there is no corresponding track circuit on the adjoining up slow line; (2) Owing to the absence of track circuit, trains are not permitted, in fog, to go forward past No. 1 box up slow home signals to stand at the up slow starting signal; (3) The fogman stationed at the starting signals had no repeater to advise him of the condition of the signal arms; (4) There was no fireman's plunger or telephone at that signal.

The report of Colonel Mount, who inquired into the accident, is rather a lengthy document, and it will be sufficient for our purpose to summarise the main features. As a preliminary, it should be noted that the collision occurred during very dense fog, the maximum range of visibility being about 6 yards. The 5.10 train stood on the up slow line for a couple of minutes at No. 1 box signals, after which time it was accepted by Euston No. 4. Signalman Page lowered his home and starting signals and motorman Simpkins proceeded past—"crawling along" was the term used—No. 1 box. When the tail lamp man gave two blasts on his whistle, Page knew that the 5.10 had gone beyond the box, so he gave *train entering section* to Euston No. 4, and signalman Harding, in that box turned his commutator so that the block instrument indicated *train on line*.

As Simpkins was approaching the slow line starting signal, his train exploded a detonator, so he pulled up, but he

could not see either the signal or the fogman. Whittington, the fogman, as we have said, had no repeater and so, for a couple of hours, he had to climb the signal for nearly every train in order to learn the condition of the signal arms. He climbed the signal again for the 5.10 and told Simpkins that one arm had dropped. That did not satisfy Simpkins, as the Royal Scot was at that moment travelling on the up fast line, so he told Whittington to make sure as to the up slow signal. The fogman, as a result, called out, "Stop where you are; it is still against you." Just then, Holmes, the guard of the 5.10, came to the motor compartment, and it was decided that he should go back to Camden No. 1 box to protect the train and that Simpkins should not move until Holmes rejoined the train. The guard was not able,

the leading vehicle to the extent of 33 ft.; the frame of the former passed below that of the latter, the body of which was thus thrust upwards and its trailing bogie forced almost up to its leading bogie. Guard Leonard was riding with Langham in the driving compartment. Both men had a fortunate escape; they both acted, too, with commendable coolness and promptitude.

Colonel Mount, in the conclusion to his report, says that signalman Page in Camden No. 1 agrees that, under the same conditions in future, he will not replace his starting signal until he has had *train-out-of-section* from Euston No. 4. It might be said that the period of five or six minutes that he was allowing was not unreasonable and that, as it had been proving satisfactory, he was possibly being deceived and did not realise that the fog was in fact so dense that drivers were actually coming to a stand in order to permit fogman Whittington to climb the

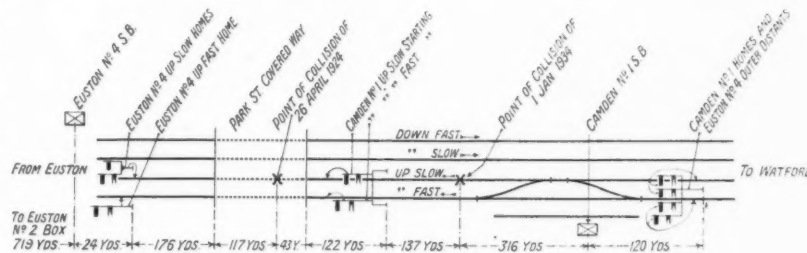


Diagram showing site of accident

however, to arrive in time to prevent Page letting the 5.24 go forward.

What had happened meanwhile in No. 1 box can no doubt be guessed. Page, as has been shown, had no track circuit indication for the up slow to correspond with that for the up fast. He was, therefore, allowing five or six minutes for trains to pass the starting signal before he restored the signal, and it will be appreciated that in this case he did it prematurely, so that the 5.10 pulled up. There was then some telephonic communication between Euston No. 2—the next box south of Euston No. 4—Euston No. 4, and Camden No. 1, the upshot of which was that signalman Harding in No. 4 box irregularly cleared the 5.10 train. Signalman Page in Camden No. 1 thereupon offered the 5.24 and, when it was accepted, lowered his home and starting signals for it. Fogman Whittington advised Simpkins, of the 5.10, of the starting signal having gone to "clear," but as his guard had not rejoined the train, Simpkins would not move. As Euston No. 4 outer distant, under Camden No. 1 home signal, was at "clear," motorman Langham, with the 5.24, was justified in running at speed, and he was quite unprepared for the 5.10 train being in the section. In the collision which resulted there were a few personal injuries, and the second coach of the 5.24 was telescoped into

gantry and advise them whether the starting signals were on or off. But Colonel Mount does not think that under such prolonged and unusual conditions of visibility, Page can justifiably claim, as he suggested, that, because he had cleared the starting signal and had no intention of holding the train there, he was no longer concerned with the train after it had passed his box, and it is difficult to understand why his suspicions were not immediately aroused when telephone inquiries commenced. According to his evidence, it does not seem to have occurred to him that his own action in replacing the starting signal prematurely might have been the cause of the delay, and this appears to have resulted from the fact that he did not inquire, and the signalmen at Euston Nos. 2 and 4 boxes did not tell him, which train the telephone conversation referred to. Colonel Mount thinks, therefore, that signalman Page must accept some measure of responsibility for failing to arrive promptly at a clear understanding on the telephone as to which train was "lost" by Euston Nos. 2 and 4.

With regard to the more serious part which signalman Harding played, he admitted that he accepted the first train, that he received the *train-entering-section* bell signal for it and lowered his signals. He was also aware

that, by turning his (Harding's) block instrument needle to *Train-on-line*, Page, after putting his starting signal to "danger," would be unable again to lower it until the needle had been turned to *line-clear*. Whatever the truth of the sequence and substance of the telephone conversations may have been, and whatever his motives were, it is clear that Harding subsequently took the very unusual course of actuating the block instrument needle irregularly. He stated that he had never done such a thing before; yet he admitted that he acted without consulting Page. Had he explained his intention and reason, it would have occurred to Page that something was wrong; as far as Page knew, he required no assistance, in the form of release, from Harding. While Page's account was that he received the out-of-section signal for the first train, and acceptance for the second, Harding denied transmitting both signals, maintaining that he only accepted one train and did not give clearance at all. On the other hand, Harding admitted receiving the train-entering-section signal a second time after his release of the block instrument; in view of the fact that Page had no idea that the first train was standing at the starting signal and, as procedure is so much a matter of routine, it seems most unlikely that the proper block signals were not exchanged for the second train. It is considered, therefore, that signalman Page's account in this respect is to be relied upon rather than signalman Harding's, and by the latter's admission of his action in respect of the block instruments, he must be held mainly responsible for having made it possible for the accident to occur.

Colonel Mount concludes his report as follows:—The exceptionally bad fog conditions were the originating cause of this collision, and in such difficult circumstances, it is noteworthy that the signalmen concerned were dealing with two electric and two steam trains in close succession on the two up roads, while, at the same time, they were handling the evening peak on the two down roads.

It was not the intention that trains should be stopped in fog at Camden No. 1 box starting signal on the slow line; but this was necessarily taking place, and, in the absence of a fireman's plunger or telephone, it was unknown to signalman Page, who was allowing a fixed time before replacing the signal to "danger."

Had colour light signals existed, placed as close as practicable to the driver's eye level, Simkins would doubtless have been able to see the indication, and the accident would not have occurred as his train would not have been delayed; of course, he had had no difficulty in this respect while traversing the section of line which has recently been so equipped to the north of Camden No. 2 box.

Similarly, had repeaters existed for the use of fogman Whittington, which would have made his task easier, quicker, and safer, presumably the

accident would not have happened, as the delay to the train would have been avoided by such equipment.

The accident would also have been prevented by track circuiting on the up slow, as existed on the up fast, in rear of the starting signal and controlling the home signal. Apart from the undesirability of thus dealing with one road and not with the other in the same direction, it was unfortunate that this safeguard had been omitted, having regard to the large amount of work of

this character which the L.M.S.R. has carried out in recent years. It is, however, satisfactory to note that provision in this respect has now been made.

In view of the incidence of fog this winter, I suggest that, if it has not already been carried out, it would be well for consideration to be given to a comprehensive review of similar situations, particularly on the more heavily-trafficked lines, which may be subject to such weather conditions.

QUESTIONS IN PARLIAMENT

Payment for Mail Conveyance

Mr. Neil Maclean on June 7 asked the Postmaster General whether he could state the sum that was paid yearly to the London Midland & Scottish Railway Company for the conveying of mails between Holyhead and the Irish Free State.

Sir Ernest Bennett (Assistant Postmaster General) replied.—The figure for which the hon. member asks is £74,850.

Denaby Main Level Crossing

Mr. Thomas Williams asked the Minister of Transport whether his attention had been called to the loss of time to road transport at the Denaby Main level-crossing; and what steps it was proposed to take with a view to the erection of a new bridge.

Lieut.-Colonel Headlam (Parliamentary Secretary).—The Minister's attention has not previously been called to this level crossing, but he will consider any proposal which the highway authority may submit to him.

Theft of Dynamite from Indian Railway

Major-General Sir Alfred Knox on June 11 asked the Secretary of State for India whether his attention had been drawn to the recent theft of 200 lb. of dynamite from the Udaipur State Railway; and whether he would suggest to the Government of India that adequate steps should be taken to guard explosives.

Sir Samuel Hoare.—I have seen a Press report of this incident. The State authorities, not the Government of India, are primarily responsible for the necessary protective measures. I am sure that they fully realise the importance of ensuring that explosives do not fall into unlawful hands. The Government of India and the Indian States are fully alive to the risks and are in my view taking every practical precaution.

Cost of Railway Statistics.

Mr. Barclay-Harvey, on June 13, asked the Minister of Transport if he would state what was the cost to the Ministry of Transport and to the railway companies respectively of compiling the statistics relating to railway traffics which usually appeared four months after the period to which they related; how many copies of these statistics were sold; and what purpose they served.

Mr. Stanley.—I assume that my hon. friend refers to the publication entitled "Railway Statistics." This document is issued monthly, usually about 10 weeks after the period to which it relates. I have no information as to the cost incurred by the railway companies, but I have no doubt that the bulk of the information contained in the returns would, in any event, be compiled by the companies for their own purposes. The cost incurred by my department in the compilation of these statistics is estimated to be approximately £1,200 a year. This figure does not include printing. The average number of copies sold monthly is 250. The statistics in question are compiled by the railway companies and rendered to me in compliance with Section 77 of the Railways Act, 1921. The returns are reviewed and have been modified from time to time by agreement with the railway companies with the object of securing economy, and I am satisfied that their continued publication serves a useful purpose from the point of view of the railway companies themselves and of the various bodies who are concerned with railway traffics and charges and with the economic and efficient management of the railways.

Mail Robberies from Trains

Sir Gifford Fox asked the Postmaster-General what was the number of postal robberies during 1933 and the first five months of 1934, respectively; how many of these were carried out during the transit of mail by railway trains or at railway stations; what were the total losses involved; and whether any new steps were contemplated to cope with mail robberies in mail vans on trains.

Sir E. Bennett, Assistant Postmaster-General, replied.—During the year 1933, mail bags were stolen or tampered with in course of transit on 49 occasions. On 48 of these occasions the loss is believed to have occurred on the railway. The corresponding figures for the first five months of this year are 22 and 20 respectively. It is not possible to state the total loss involved, as there is no record of the value of the contents of letters carried; but in the great majority of cases the loss seems to have been trifling. Very close attention is being given to measures for the prevention of such losses.

NOTES AND NEWS

Southern Railway Bill.—The Southern Railway Bill was read a third time, with the amendments, in the House of Lords on June 12, and was passed and returned to the Commons.

Floodlighting at King's Cross.—Arrangements have been made to floodlight the clock and lettering on the front of King's Cross station, L.N.E.R., from dusk to 1.15 a.m. nightly from October to May next inclusive.

Increased Tourist Traffic to Italy.—Many more foreign tourists are visiting Italy this year than last. In January, 117,152 foreign tourists arrived, against 94,676 for the same month last year; in February, 122,752, against 99,521; and in March, 261,049, against 132,888.

New London Suburban Station.—The L.N.E.R. and G.W.R. announce that a new halt is being constructed on the G.W. and G.C. Joint Line between Ruislip station and South Ruislip & Northolt Junction station to serve a rapidly growing residential area. The halt will be called Ruislip Gardens, and will have two platforms each 400 ft. long, a booking office, waiting rooms, offices, and electric light. It is hoped that the halt will be open for traffic early in July.

Czechoslovak State Railways.—It is reported from Prague that the State Railways Administration, which had large deficits in 1933 and 1932, has begun the current year somewhat more favourably. Receipts from goods traffic increased by 3.6 million crowns in January, by 13.6 millions in February, and by 22 millions in March. In January and February there was a decline of 4.9 million crowns in passenger receipts as a result of the introduction of cheaper fares, but the March figures showed an improvement here too, receipts being 50.9 millions, compared with 47 millions in March, 1933.

London Transport (Interim Financial Arrangements) Bill.—The petition for this Bill which makes provision regulating the financial arrangements of the London Passenger Transport Board pending the confirmation or settlement of a pooling scheme under the London Passenger Transport Act, 1933, and the determination of the amounts and classes of Transport Stock to be issued as consideration for the transfer to the board of certain undertakings and parts of undertakings, and for other purposes, came before the Select Committee on Standing Orders of the House of Commons on June 7 on a report from the Examiners of non-compliance with Standing Orders. The Committee reported that the Standing Orders ought to be dispensed with, and that the parties be permitted to proceed with their Bill. The Bill was accordingly

read the first time in the House of Commons on June 8, and was considered by the House on Wednesday, June 13. The Standing Orders Committee of the House of Lords on Tuesday also reported that the Standing Orders not complied with ought to be dispensed with.

Compulsory U.S.A. Railway Reorganisation.—The U.S.A. Federal Court has notified the trustees of the Missouri, Pacific, & San Francisco Railway that if it does not formulate a reorganisation plan without delay, the Court will fix a date for the publication of its own plan.

Safe Driving Competition.—The special awards gained in the 1933 Safe Driving Competition were presented to the successful entrants by the Lady Mayoress at the Guildhall, on Monday, May 28. The Lord Mayor presided, and was supported by the Rt. Hon. Lord Ebbisham, President of the London Safety First Council. Twenty-one of the L.N.E.R. drivers qualified for awards, three for the 15-year special bar for continuous driving for 15 years without blameworthy accident, and eighteen for ten years.

"The Cruise of the Century."—The cruise committee of the Glasgow and West of Scotland Commercial College used various ingenious slogans, including "The Cruise of the Century" and "Mammoth Excursion to Tarbert," to boost the annual outing on May 26. The phrases were not altogether unwarranted, for the two largest and newest L.M.S.R. Clyde turbine steamers had been chartered for the afternoon, while the Royal Scot train had been specially booked to convey the excursionists from Glasgow to the coast. The train, which left Glasgow Central at 2 p.m. for Fairlie, was composed of engine No. 6100, and the carriages which took part in the recent American tour. Three further special trains followed at 2.5, 2.14, and 2.23, respectively. From Fairlie pier the steamers *Duchess of Montrose* and *Duchess of Hamilton* sailed across to Arran, rounded Holy Isle, passed along the Arran coast, rounded the northern end of the island, and steamed across to Tarbert in Loch Fyne, where the passengers were allowed one hour ashore. The vessels then cruised through the Kyles of Bute, sailed round Rothesay Bay, and finally crossed over

the Firth to Fairlie, whence the Royal Scot and three other trains brought the trippers back to Glasgow. The distance covered during the trip was 160 miles, and the cost was 5s. 6d. a head. Among the members of the cruise were Mr. John Ballantyne, Chief Officer for Scotland, L.M.S.R., and the Rt. Hon. the Lord Provost of Glasgow.

The Week's Road Accidents.—The Secretary to the Ministry of Transport has issued the following return, for the week ended June 2, of persons killed or injured in road accidents:—

	Killed in accidents reported during the week	Reported during the week as having died as the result of accidents occurring in previous weeks	Injured in accidents reported during the week
	No.	No.	No.
England ...	78	34	4,345
Wales ...	8	1	202
Scotland ...	7	6	422
Great Britain	93	41	4,969

The total fatalities of the week as the result of road accidents were therefore 134.

Euston House Floodlighting.—The floodlighting of Euston House, the London headquarters of the L.M.S.R., adjacent to Euston station, provides London with a striking new landmark. Some 33 G.E.C. floodlights are employed in the scheme, and of these 27 are employed for illuminating the front and upper sides of the tower. These floods are all equipped with 500-watt Class B Osram lamps. The lower sides of the tower are illuminated by 1,000-watt



Euston House floodlighted

floods. The L.M.S. sign is carried out in neon, and the whole effect is impressive, as may be seen from the night photograph which we reproduce.

Fatal Level Crossing Collision in Spain.—On June 11 a train collided with a motor coach at Pola de Gordon, near Leon, and 22 persons were killed. Some of the casualties were due to fire resulting from the explosion of the petrol tank.

A Railway Artist.—Mr. C. Potter, a clerk at King's Cross Goods station, L.N.E.R., has an aquatint, depicting a railway shunting scene, hung in this year's Royal Academy. The Contemporary Art Society recently bought for the nation an earlier work of Mr. Potter's.

Closing of Great Southern Railways Branch.—Notice is given that on and after July 2 the Great Southern Railways Company intends to cease running a service of trains on the Ballina-Killala branch and to substitute therefor road services for merchandise and livestock.

Great Southern Railways' Wages.—An agreement covering wages and conditions on the Great Southern Railways until December 31, 1935, has been signed by some of the unions concerned, and it is considered likely that all parties will have signed by the end of this week. The wage reduction for all grades has been fixed at 7½ per cent. instead of the 10 per cent. asked for by the company.

North Queensferry Pier.—A contention by the boatmen of North Queensferry that the town pier was a part of the King's Highway and did not belong to the London & North Eastern Railway Company was settled in the Dunfermline Small Debt Court on June 12, where Sheriff Umpherston decided that the railway company's title to the ownership of the pier, and its right to exact pier dues, were clearly established.

Karrier Motors Limited.—It has been found necessary for a large debenture holder to appoint a receiver for Karrier Motors Limited. The factory at the moment is very busy and full of orders, and there is no intention whatever of the business being liquidated, the object being to carry on after the reorganisation. The company is looking forward to increased business by improvements both in production and organisation.

Telford Centenary Exhibition.—A centenary exhibition of plans, drawings, models, and personal belongings of Thomas Telford, the Scottish engineer and architect and maker of roads, was opened yesterday (June 14) at the Institute of Civil Engineers. Telford, born in 1757, died in 1834. He was engineer to more canals than any other man during the period of canal development, his work including the Caledonian, Ellesmere, Shrewsbury, Gloucester and Berkeley, Birmingham, and Crinan canals. Bridges built by him are standing in every part of the British Isles.

In Scotland alone he claimed the responsibility for over 2,000. He was made first president of the Institution of Civil Engineers in 1820.

Mersey Harbour Board New Issue.—The subscription lists in connection with the issue of £500,000 of 3½ per cent. redeemable debentures by the Mersey Docks & Harbour Board were closed early on Tuesday morning (June 12).

Baldwins Limited.—It is announced that the negotiations which have been taking place between Sir Charles Wright as Chairman of Baldwins Limited, and Sir Geoffrey Byass as Chairman of R. B. Byass & Co. Ltd., have now been concluded, and an offer by Baldwins Limited for the whole of the share capital of that company has been accepted.

London Transport Acquisitions.—Three more of London's remaining small omnibus companies were absorbed by the London Passenger Transport Board on June 13. They were:—Westminster Omnibus Company, 11 buses; Paterson Omnibus Company, 11 buses; Robert Hawkins Company, 5 buses. Only ten small omnibus companies are still outstanding, of which the most important is the City Motor Omnibus Company.

Road-Railer for Permanent Way Work.—On the occasion of the recent Institute of Transport Congress at Leeds, a party visited the Huddersfield works of the Karrier Motors Limited. Among the exhibits shown was a lorry-type road-railer ordered by the L.N.E.R. for permanent way maintenance work. This vehicle was the subject of an illustrated article in THE RAILWAY GAZETTE of January 19 last.

Presentation by Irish and English Traffic Conference.—Mr. A. Sibbald (late of the Burns & Laird Line), who has been an unusually helpful member of the Irish and English Traffic Conference for many years, was recently made the recipient of a handsome gold wrist watch as a token of esteem. In making the presentation, Mr. H. B. Webster, Chairman of the conference, referred to the loss felt on Mr. Sibbald's retirement from the conference.

Railway Conciliation Machinery.—A further meeting was held on June 8 between representatives of the N.U.R., the Railway Clerks' Association and the General Managers of the four group railway companies. Sir James Milne, Great Western Railway, was in the chair. The companies' representatives replied to the points raised by the trade unions at the previous meeting. The companies intimated that while they could not agree to withdraw the notice terminating the reference of questions to the central and national wages boards they were desirous of agreeing on new machinery of negotiation. They made it clear that the proposals put forward from their side, as set out in the printed report of the special joint committee, were in no sense an ultimatum, and that

they were prepared to continue the discussions either on those proposals or on any alternative.

Closed L.N.E.R. Stations for Campers.—Following the introduction of camping coaches on the L.N.E.R., the company has now announced its intention to turn the closed passenger stations at Gullane and Aberlady into camping quarters. The charge for each station, inclusive of linen, crockery, &c., will be £3 3s. a week.

Salonika-Monastir Railway Loan.—Reports that Greece has agreed to transfer a greater proportion than the agreed percentage of 27½ per cent. on the coupons of the Salonika-Monastir Railway loan are, according to Reuters, officially denied at Athens. It is stated that the holders of this loan are being treated in exactly the same way as the holders of other Greek external debt securities.

Thames Passenger Service.—Thames Passenger Service has been registered as a public company with a capital of £5,000 in £1 shares. The objects are to carry on the business of ship and boat owners, carriers of passengers and goods, &c., particularly on the River Thames. The first directors are: Major Stanley W. Beeman, Julius H. O. Bunge, Alan P. Herbert, William F. B. Nott.

Railway Outrages in Austria.—As a result of the recent bomb outrages on the Austrian Federal Railways, which reached their climax in the report of 22 explosions in 24 hours and have caused considerable delay to trains, a special defence force has been formed to safeguard railway property. The new force will collaborate with the police in the apprehension of terrorists and has been granted a wide measure of freedom in its methods of work.

Civil Engineers' Conversazione.—The annual conversazione of the Institution of Civil Engineers took place on Wednesday night, when Sir Henry Maybury, the President, received the guests, among whom were many distinguished persons. Lectures were given by Dr. Ezer Griffiths on "Recent Developments in Refrigeration, with special reference to the Import of Fruit from Abroad"; Sir Alexander Gibb, on "Thomas Telford, F.R.S. (1757-1834), First President of the Institution"; and Mr. F. C. Snowden-Gamble on "The Empire Air Route to India." There was the usual interesting exhibition of engineering models and scientific apparatus, as well as enjoyable musical programmes.

G.W.R. Ambulance Gold Medalists' Outing.—The twelfth annual outing of G.W.R. ambulance Gold Medalists was held at Oxford on Saturday, June 2. Those participating were holders of the company's gold medals for from 15 to 30 years' efficiency in first-aid work who forgather once a year from all parts of the system for a day's enjoyment together, and who represent practically all grades of the

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service. The medallists, many of whom were accompanied by their wives, numbered about 450, and the proceedings opened by a luncheon at the Town Hall at which the Mayor of Oxford, Alderman Miss Tawney, was present. Mr. C. T. Cox, Divisional Superintendent, London, presided at the lunch, and among the guests of the medallists were Mr. A. S. Mills, District Goods Manager, Dr. W. Audland, Oxford, and Miss C. A. Ault, Ambulance Centre Secretary. Telegrams of good wishes were received from Mr. J. F. Lean, Principal Assistant to the General Manager, Mr. H. L. Wilkinson, Superintendent of the Line, and Mr. W. G. Chapman, late Centre Secretary. The Chairman welcomed the gathering to the London Division, and referred to the gratifying growth of the ambulance movement on the Great Western Railway. The Mayor said she regarded herself as fortunate that the gathering should have been arranged during her mayoralty, and said that railway ambulance men had the thanks of the whole community for the fine work they were doing through-

out the country. Following votes of thanks to the organisers and others concerned, the party embarked at Folly Bridge for a steamer trip to Abingdon which was much enjoyed, and returned by road to Oxford where tea was served at the Town Hall, after which many members of the party visited the various colleges and places of interest before entraining for their home stations.

L.M.S.R. Bill.—The London Midland & Scottish Railway Bill, which has already been through the House of Commons, was read a second time and committed in the House of Lords on June 7. No petitions having been deposited against it, the Bill was referred to the Unopposed Committee, which on June 13 ordered it to be reported to the House. The measure provides for the construction of a railway about half a mile in length to form a connecting link between the old Midland and North Western lines at Hazel Grove, near Stockport, and for the acquisition of additional lands.

British and Irish Railway Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices	
			June 13, 1934	Rise, Fall
G.W.R.				
Cons. Ord.	55½	31	52½	+1½
5% Con. Prefce.	109½	69½	112½	—
5% Red. Pref. (1950) ..	109½	87½	108½	—
4% Deb.	108½ ¹⁶	99½	108	—
4½% Deb.	108	100½	110½	—
4½% Deb.	116	106	117½	—
5% Deb.	128	117½	128½	—
2½% Deb.	65	60	70½	—
5% Rt. Charge	124	111½	127½	—
5% Cons. Guar.	122	103	124½	—
L.M.S.R.				
Ord.	297½	12½	23½	+1
4% Prefce. (1923)	51	17	49	+1
4% Prefce.	72	33½	78	+1
5% Red. Prf. (1955)	93	47½	99	—
4% Deb.	103½	89½	102½*	+1½
5% Red. Deb. (1952) ..	114	105	111½	—
4% Guar.	97½	68½	99½	—
L.N.E.R.				
5% Pref. Ord.	22½	7½	17½	—
Def. Ord.	10½	4½	8	—
4% First Prefce.	65½	19½	66	—
4% Second Prefc.	40½	12½	34	+1½
5% Red. Pref. (1955) ..	83½	27	87	—
4% First Guar.	94½	58½	96	—
4% Second Guar.	89½	48	90	—
3% Deb.	77	60½	77½*	+½
4% Deb.	102½	80	101*	+1
5% Red. Deb. (1947) ..	112	102½	108½	—
4½% Sinking Fund Red. Deb.	107½	98½	106½*	—
SOUTHERN				
Pref. Ord.	71	27½	77	+2
Def. Ord.	24½	9½	24½	+½
5% Prefce.	107½ ¹⁶	74	111	—
5% Red. Pref. (1964) ..	107½	78½	111½	—
5% Guar. Prefce.	124½	102½	124½	—
5% Red. Guar. Pref.	115½	103½	115½	—
(1957)				
4% Deb.	107½	96½	105*	-2
5% Deb.	126½	114½	125½*	-1
4% Red. Deb.	107½	100	106½*	-1
1962-67				
BELFAST & C.D.				
Ord.	6	4	5	-1
FORTH BRIDGE				
4% Deb.	99½	95½	100½*	-1
4% Guar.	98½	94	100½*	-1
G. NORTHERN (IRELAND)				
Ord.	7½	3½	5	—
G. SOUTHERN (IRELAND)				
Ord.	28	16	20	—
Prefce.	24	12½	16	+1
Guar.	42	16½	40	—
Deb.	60	30½	63	+½
L.P.T.B.				
4½% "A"	117½	112	118½*	—
5% "A"	127½	119½	127*	—
4½% "T.F.A."	111½	106	108*	—
5% "B"	122½	114	122*	—
5% "C"	86½	74½	74½	+1
MERSEY				
Ord.	16½	5	14	—
4% Perp. Deb.	83	63½	87½	—
3% Perp. Deb.	62	51	65½	—
3% Perp. Prefce.	50½	27	53½	—

British and Irish Railway Traffic Returns

GREAT BRITAIN	Totals for 23rd Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
L.M.S.R. (6,940½ mls.)						
Passenger-train traffic...	467,000	551,000	- 84,000	9,507,000	9,433,000	+ 74,000
Merchandise, &c. ...	460,000	348,000	+ 112,000	10,189,000	9,268,000	+ 921,000
Coal and coke ...	185,000	125,000	+ 60,000	5,547,000	5,234,000	+ 313,000
Goods-train traffic ...	645,000	473,000	+ 172,000	15,736,000	14,502,000	+ 1,234,000
Total receipts ...	1,112,000	1,024,000	+ 88,000	25,243,000	23,935,000	+ 1,308,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	300,000	371,000	- 71,000	6,108,000	6,089,000	+ 19,000
Merchandise, &c. ...	291,000	250,000	+ 41,000	7,157,000	6,386,000	+ 771,000
Coal and coke ...	205,000	149,000	+ 56,000	5,406,000	4,824,000	+ 582,000
Goods-train traffic ...	496,000	399,000	+ 97,000	12,563,000	11,210,000	+ 1,353,000
Total receipts ...	796,000	770,000	+ 26,000	18,671,000	17,299,000	+ 1,372,000
G.W.R. (3,750½ mls.)						
Passenger-train traffic...	195,000	229,000	- 34,000	3,974,000	4,013,000	- 39,000
Merchandise, &c. ...	183,000	133,000	+ 50,000	4,071,000	3,713,000	+ 358,000
Coal and coke ...	92,000	60,000	+ 32,000	2,363,000	2,297,000	+ 66,000
Goods-train traffic ...	275,000	193,000	+ 82,000	6,434,000	6,010,000	+ 424,000
Total receipts ...	470,000	422,000	+ 48,000	10,408,000	10,023,000	+ 385,000
S.R. (2,176 mls.)						
Passenger-train traffic...	312,000	339,000	- 27,000	5,938,000	5,884,000	+ 54,000
Merchandise, &c. ...	65,000	52,000	+ 13,000	1,418,000	1,350,500	+ 67,500
Coal and coke ...	24,000	17,000	+ 7,000	751,000	687,500	+ 63,500
Goods-train traffic ...	89,000	69,000	+ 20,000	2,169,000	2,038,000	+ 131,000
Total receipts ...	401,000	408,000	- 7,000	8,107,000	7,922,000	+ 185,000
Liverpool Overhead (6½ mls.)						
Mersey (4½ mls.) ...	4,114	4,518	- 404	95,500	91,617	+ 3,883
*London Passenger Transport Board ...	550,600	—	—	24,872,600	—	—
IRELAND						
Belfast & C.D. pass. ...	2,789	3,047	- 258	43,992	45,358	- 1,366
" " goods ...	435	538	- 103	12,282	12,242	+ 40
" " total ...	3,224	3,585	- 361	56,274	57,600	- 1,326
Great Northern pass. ...	9,800	10,200	- 400	177,800	107,450	+ 70,350
" " goods ...	6,750	7,450	- 700	189,300	115,700	+ 73,600
" " total ...	16,550	17,650	- 1,100	367,100	223,150	+ 143,950
Great Southern pass. ...	24,293	28,378	- 4,085	462,248	448,874	+ 13,374
" " goods ...	31,622	25,447	+ 6,175	744,697	705,015	+ 39,682
" " total ...	55,915	53,825	+ 2,090	1,206,945	1,153,889	+ 53,056

Whit Monday Week, 1933

*49th Week.

* ex-dividend

CONTRACTS AND TENDERS

Lancashire Dynamo & Crypto Limited has received an order for four 20-h.p. electric motors for capstans for the Buenos Ayres Great Southern Railway.

D. Wickham & Co. Ltd. has received an order from the Antofagasta (Chili) & Bolivia Railway for one No. 65 petrol-driven rail motor trolley.

D. Wickham & Co. Ltd. has also received an order from Estrado de Ferro Sao Luiz-Therezina, Brazil, for one metre-gauge six-seater petrol-driven saloon inspection railcar.

Ransomes & Rapier Limited has received an order for three electrically-driven capstans complete for the Buenos Ayres Great Southern Railway.

Henry Simon Limited has received an order for two oat clippers and grain cleaners complete with dust-collecting cyclones, belting and electric motors for elevators for the Buenos Ayres Great Southern Railway.

Standard Telephones & Cables Limited has received an order from the Egyptian State Railways Administration for a private automatic branch exchange (adjudication of April 21, ref. No. E.S.R. 34.182) at a total price of £908 delivered f.o.b. London.

The Patent Shaft & Axletree Co. Ltd. has received an order from the Central Uruguay Railway for two single pairs of steel columns 23 ft. 6 in. long with built-up channel bracing and one double pair of steel columns 3 ft. 3 in. diameter by 23 ft. 6 in. long with built-up channel bracing transversely and diaphragm bracing longitudinally, for the renewal of supports of the Santa Lucia bridge.

L.N.E.R. Road Motor Vehicles

The L.N.E.R. has decided further to increase its fleet of motor vehicles by the purchase of 79 new motors and 312 mechanical horses. The motors will be used mainly in developing the company's extensive system of country lorry services which are proving a welcome facility in rural districts. About half of the mechanical horses will be used to replace horse teams at various centres and to give new and improved services in many localities. The remaining half will replace a number of old solid-tired motors which have become obsolete. These purchases will bring the company's fleet up to a total of nearly 2,800 vehicles. It is claimed to be the largest fleet owned by a single operator in the country, and a remarkable feature is the inclusion of over 800 mechanical horses.

B.E.N. Patents Limited has recently opened a branch office at 45, Hardman Street, Liverpool.

Among recent road motor orders received by Leyland Motors Limited are those for 4 six-wheeled Hippo goods

vehicles for the South African Railways and Harbours Administration; 6 diesel-engined Lion passenger chassis for the Great Southern Railways, Ireland; and 3 diesel-engined Badger goods vehicles for Wordie & Co., Glasgow.

The Egyptian State Railways Administration has recently placed orders as follow:—

For aerial line materials (ref. no. E.S.R. 34.164 of January 24 and adjudication of March 19).

Charles Richards & Sons Ltd. for items Nos. 1, 6 and 10 (List A), total cost £1,233 15s. 9d. delivered f.o.b. Liverpool or Newport, Mon.

Bullers Limited for items Nos. 2, 3 and 7 (List A) and item No. 2 (List B) total cost £876 3s. 4d., delivered f.o.b. London or Liverpool.

Thomas William Lench Limited for items Nos. 4, 5 and 8 (List A), total cost £492 7s. 6d. delivered f.o.b. London or Liverpool.

Bayliss Jones & Bayliss Limited for item No. 9 (List A), total cost £79 3s. 4d. delivered f.o.b. London or Liverpool.

Hermesdorf Thuringia for item No. 1 (List B) total cost £392, delivered f.o.b. Hamburg.

W. F. Dennis & Company for items Nos. 3 and 4 (List B), total cost £247 10s. delivered f.o.b. Hamburg.

British Insulated Cables Limited for item No. 11 (List A), total cost £81 13s. 4d. delivered f.o.b. Liverpool.

Colonial Orders

The following orders have recently been placed by the Crown Agents for the Colonies. In several instances more extended reference has already been made to them in this column:—

Turner's Asbestos Cement Company: Asbestos cement pipes and fittings.

Atlas Stone Co. Ltd.: Asbestos cement sheets.

General Electric Co. Ltd.: Automatic telephone apparatus, lamps.

Capper, Pass & Son Ltd.: Block tin.

Standard Telephone & Cables Limited and Siemens Bros. & Co. Ltd.: Cable.

The Whitcross Co. Ltd. and T. Bolton & Sons Ltd.: Copper wire.

Albion Motors Limited: Diesel engines for motor lorries, lorry chassis.

T. Robinson & Son Ltd.: Edging machine.

Ruston-Bucyrus Limited: Excavator.

Guest, Keen & Nettlefolds Limited: Fishbolts.

Belliss & Morcom Limited: Generating set.

Bullers Limited: Insulators.

Alfred Herbert Limited: Lathe.

T. Firth & John Brown Limited and Taylor Bros. & Co. Ltd.: Locomotive tyres.

Vacuum Oil Co. Ltd.: Lubricating oil.

Ferranti Limited: Meters and spares.

Indestructible Paint Co. Ltd. and Red Hand Compositions Limited: Paint.

Stewarts and Lloyds Limited, Staveley Coal & Iron Co. Ltd., and Stanton Ironworks Co. Ltd.: Pipes and fittings.

Harland Engineering Co. Ltd.: Pumps.

The P. & M. Co. (England) Ltd.: Rail anchors.

Churchill Machine Tool Co. Ltd.: Machine tool.

P. & W. MacLellan Limited, South Durham Steel & Iron Co. Ltd., and Brownlie & Murray Limited: Steelwork.

Glenfield & Kennedy Limited: Valves for pipe line.

Manchester Water Meter Company and Tylors (Water & Sanitary) Limited: Water meters and spares.

Billington & Newton Limited and J. Stone & Co. Ltd.: White metal.

The Great Western Railway proposes to purchase 100,000 steel permanent-way keys.

Bridge Repairs by Welding

Tenders are invited by the Egyptian State Railways Administration, receivable at the General Management, Cairo, by October 6 for the supply of materials and works connected with the repairs to and strengthening of seven railway metal bridge superstructures by the electric arc-welding process. Two of these bridges are in the Alexandria region, one in the Cairo region and four

in Upper Egypt, between Nag-Hamadi and Kom-Ombo stations.

Tenders are invited by the Egyptian State Railways Administration, receivable at the General Management, Cairo, by August 1, for the supply of 50 sets of steam turbo-electric locomotive head lamp equipments.

Tenders are invited by the Egyptian State Railways Administration, receivable in the Chief Engineer's Office, 41, Tothill Street, London, S.W.1 for the supply of one water crane. Tenders are also invited for the supply of 50 carriage and wagon tyres, 1 ft. 11½ in. diam.

Tenders are invited by the Egyptian State Railways Administration receivable at the General Management, Cairo, for the supply of one 40-ton self-propelling steam breakdown crane with match truck. Firms interested should communicate direct with the Chief Inspecting Engineer, 41, Tothill Street, London, S.W.1.

Enquiries for Bridgework

Tenders are invited by the Egyptian State Railways Administration, receivable at the General Management, Cairo, by September 25, for the supply and erection of five railway bridge superstructures in Upper Egypt, including the supply and laying of about 160 tons of rolled steel and 12 tons of cast steel.

The South Indian Railway invites tenders, receivable by June 25 at 91, Perty France, Westminster, S.W.1, for the supply of steelwork for bridges. Copies of the drawings may be obtained at the offices of the consulting engineers, Messrs. Robert White & Partners, 3, Victoria Street, Westminster, S.W.1.

The Argentine State Railways Administration is calling for tenders, to be presented in Buenos Aires by July 11, for the supply of 9,130 metres of weldless steel locomotive boiler tubes and 521 weldless steel tubes for superheating locomotive boilers together with couplings. Firms desirous of offering tubes of United Kingdom manufacture can obtain the further details from the Department of Overseas Trade.

The Sorocabana Railway Administration has called for tenders for the supply of the metal component parts of 600 goods vehicles, of which 250 are to be 30-ton covered wagons (50 being intended for the conveyance of fruit), 200 high-sided 30-ton open wagons, and 150 cattle wagons. The successful firm will be called upon to supply 50 per cent. of these vehicles within 90 days, and the remainder within periods varying from 30 to 60 days. Prices are to be quoted per unit on the basis of c.i.f. Santos landed, exclusive therefore of customs duties and dock charges. Payment will be effected within a period of five years (including interest at 6 per cent. per annum) in monthly, three-monthly, or six-monthly instalments, or in accordance with the exchange facilities granted by the Bank of Brazil.

OFFICIAL NOTICES

Central Argentine Railway Limited.

NOTICE is hereby given that the Transfer Books of the 4 per cent. Debenture Stock and the 3½ per cent. Central Debenture Stock of the Company will be closed from the 8th to the 20th June, both days inclusive, for the preparation of Warrants for interest for the half-year ending 30th June, 1934.

F. FIGHERA,

Secretary.

3a, Coleman Street,
London, E.C.2.
7th June, 1934.

Bengal-Nagpur Railway Company Limited.

THE Directors are prepared to receive Tenders for:-

2,000 DRAWBARS.

600 STEEL TYRES.

Specifications and Forms of Tender can be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after Monday, 11th June, 1934.

A fee of 10s. will be charged for each copy

of the Specification which is NOT returnable.

Tenders must be submitted not later than Noon on Thursday, 21st June, 1934.

The Directors do not bind themselves to accept the lowest or any Tender, and reserve to themselves the right of reducing or dividing the order.

By Order of the Board.

R. GRANT,

Secretary.

Universal Directory of Railway Officials and Railway Year Book

39th Annual Edition, 1933-34.

Price 20/- net.

THE DIRECTORY PUBLISHING CO. LTD.,

33, Tothill Street, London, S.W.1.

The Chinese Government Purchasing Commission.

THE Commission is prepared to receive Tenders from British manufacturers only for the supply of:-

(a) 27,700 Metric Tons of 45-kg. RAILS.

1,550 Metric Tons of FISHPLATES.

2,900 Metric Tons of 60-lb. RAILS.

280 Metric Tons of FISHPLATES.

(b) 195 Metric Tons of FISHBOLTS and NUTS.

694 Metric Tons of DOGSPIKES.

Tender Forms can be obtained at the offices of the Consulting Engineers, MESSRS. SANDBERG, 40, Grosvenor Gardens, London, S.W.1.

Non-returnable fees will be charged for each set of documents as follows: (a) £2; (b) £1.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:- *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

RAILWAY AND OTHER REPORTS

Beira Railway.—It is announced that payment of interest to June 30, 1934, on the 6½ per cent. debenture stock will be made on July 2.

Midland Railway Company of Western Australia.—The directors have authorised an interim payment of interest on the second mortgage income debenture stock, on account of the year ending June 30, of 2 per cent., payable July 2 (the same as last year).

Rohilkund & Kumaon Railway.—The Board has declared an interim dividend for the half-year ending March 31, 1934, of 4 per cent., together with a bonus of 2 per cent., or 6 per cent. in all, on the ordinary stock. The dividend will be paid less income tax at the rate of 2s. 6d. in the £ on July 30, 1934.

Bengal & North Western Railway.—The Board at its meeting on June 7, after placing as usual £35,000 to sinking fund, declared an interim dividend for the half-year ending March 31, 1934, of 4 per cent., together with a bonus of 4 per cent. or 8 per cent. in all, on the ordinary stock. The dividend and bonus will be paid less income tax at the rate of 2s. 6d. in the £, and will be payable on July 30, 1934.

Eastern Counties Omnibus Co. Ltd.—For the year ended March 31, 1934, the accounts of this company, which is jointly controlled by the L.M.S. and L.N.E. Railway Companies and Tilling & British Automobile Traction Limited, show a profit, after providing for depreciation, &c., of £47,037, to which must be added £15,498 brought forward from the previous year, making a total of £62,535. The directors recommend payment of a dividend of 5 per cent. on the ordinary shares and that £4,000 shall be written off investment, leaving £24,932 to be carried forward. The company has

acquired a controlling interest in Norwich Electric Tramways Company, and the whole of the shares in Varsity Express Motors Limited, and Varsity Coaches Limited. Several small omnibus businesses have been acquired during the year, and an omnibus station has been provided in Ipswich.

Turner & Newall Limited.—The directors have decided to pay an interim dividend of 2½ per cent. actual on the ordinary capital, which compares with 1¼ per cent. actual a year ago. The interim payment for 1932-33 was followed by a final of 3½ per cent., which brought the total distribution for that year to 5 per cent.

Ruston & Hornsby Limited.—The directors announce that the balance on trading account for the past year shows a profit of £53,224, compared with a loss of £49,604 in respect of the preceding year. The report adds that the improvement mentioned last year has continued. Sales have expanded considerably, but the volume of business at present market prices is still insufficient to produce satisfactory profits. On the whole the outlook is more encouraging than for some years past.

James Keith & Blackman Co. Ltd.—After providing for payment of preference dividend (£2,112), and making sufficient allowance for depreciation and reserves against doubtful debts, the audited accounts for the year ended March 31, 1934, show an available balance standing at the credit of profit and loss account of £24,213. The directors recommend a dividend on the ordinary shares at the rate of 9 per cent., absorbing £13,950, and leaving £10,263 to be carried forward. For the previous year the dividend was 8 per cent. The amount of business done during the year under review exceeded that of the previous year.

Callender's Cable & Construction Co. Ltd.—The directors report a profit for 1933 of £281,385, against £277,778 in the previous year. After allowing for £42,000 for depreciation, £13,500 for interest on debenture stock, and £56,000 for dividends on the two classes of preference shares, there remains a sum of £169,885. This enables the directors to recommend a dividend of 15 per cent. on the ordinary shares (the same as for the 14 preceding years), leaving £294,230 to be carried forward as against £292,932 brought in.

Forthcoming Events

- June 15 (Fri.).—Mansion House Association on Transport, at St. Ermin's Restaurant, Caxton Street, London, S.W.1, 1.15 p.m., Informal Luncheon. Annual General Meeting, 3 p.m.
- June 15-16.—Institution of Railway Signal Engineers, at Cardiff. Summer Meeting.
- June 15-18.—Railway Students' Association (London), at Belfast. Annual Convention.
- June 18-30.—Alfred Herbert Limited, Coventry. Exhibition of Grinding Machinery.
- June 20-23.—International Congress for Steel Development, at Inst. of Civil Engineers, Great George Street, London, S.W.1.
- June 21 (Thurs.).—Institution of Electrical Engineers, at Natural History Museum, London, S.W.7. Annual Conversazione.
- June 26 (Tues.).—Railway Benevolent Institution, in the Shareholders' Meeting Room, Euston Station, N.W.1, at 4 p.m. Annual Meeting.
- June 26-29.—Institution of Mechanical Engineers, at Liverpool. Summer Meeting.
- July 1-8.—International Tramways and Transport Association, at Berlin. Biennial Congress.
- July 7-12.—Permanent Way Institution, at London. Jubilee Convention.

Forthcoming Meeting

- June 20 (Wed.).—West of India Portuguese Railway (Ordinary General), 4, Coleman Street, E.C., at 2 p.m.

Railway Share Market

The stock and share markets underwent a sharp change late on Tuesday when prices in nearly every section, after a period of weakness, advanced under the influence of strong buying. Home railway stocks appeared to participate in this improvement in the general tone of the markets. The renewal of the wages discussions was viewed in a less pessimistic light and dealers discussed the prospect of a further big trade revival benefiting the railways substantially.

Southern preferred and deferred stocks were an outstanding feature in the buying. This was said to be due to the declaration of a scrip bonus by the Maidstone & District Motor Services, part of whose share capital is held by the Southern Railway Company. A more solid basis for the purchases of the preferred and deferred stocks is considered to be the expansion in the electrification of the railway. A large new mileage is

being added to the company's electrified system for the current year. London & North Eastern second preference and preferred ordinary stocks were supported on the view that the increased activity foreshadowed in the iron and steel industry during the current and ensuing years must eventually show itself in the traffic receipts of the company. Suggestions are already being made that an interim dividend may be declared on the first preference stock when the dividend statement is issued next month. The forthcoming interim reports are not, however, the immediate influence on market conditions. The main factor influencing the market is the renewal of the discussions on the wages question and the hope of a spirit of compromise prevailing. London Transport "C" stock showed some improvement following the cessation of the recent selling.

In the foreign railway market, Argentine railways were irregular in their movements. The ordinary stocks moved up

on traffic prospects encouraged by the increase in the Cordoba Central return, but it was noticeable that prior lien charges and nearly all preference issues were marked down in price. Had the disaster reported from Salvador and Honduras occurred a few years ago it would have had a serious effect on the market values of the International Railways of Central America and the Salvador Railway, but in recent years quotations for stocks of these companies have tended to become more or less nominal.

There have been no transactions in Salvador 5 per cent. prior lien debentures since last November, whilst the £10 preference shares were last dealt in at 20s. on October 13 and the £10 ordinary shares at 30s. as far back as July 6. There was a "marking" of business in the company's 5 per cent. debentures at 22½ on Friday. International of Central America common fell a dollar to five dollars middle and the preferred dropped two dollars to 18½.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1933-34	Week Ending	Traffics for Week		No. of Week	Aggregate Traffics to Date			Shares or Stock	Prices					
			Total this year	Inc. or Dec. compared with 1933		Totals		Increase or Decrease		Highest 1933	Lowest 1933	June 13, 1934	Yield % (See Note)		
						This Year	Last Year								
			£	£		£	£	£							
Antofagasta (Chili) & Bolivia	830.	10.6.34	10,680	—	920	23	290,240	221,470	+ 68,770	Ord. Stk.	26	115½	21	Nil	
Argentine North Eastern ..	753	9.6.34	12,500	+	1,200	49	515,800	529,700	— 13,900		14½	5	8	Nil	
Argentine Transandine ..	111	—	—	—	—	—	—	—	—	A. Deb.	55	40	50	8	
Bolivar	170	May, 1934	6,600	+	250	21	33,650	37,150	— 3,500	6 p.c. Db.	10	5	10	Nil	
Brazil	—	—	—	—	—	—	—	—	—	Bonds.	15	11	13	3½	
Buenos Ayres & Pacific ..	2,806	9.6.34	122,000	—	20,000	49	5,479,000	5,445,000	+ 34,000	Ord. Stk.	26	97½	13	Nil	
Buenos Ayres Central ..	190	13.5.34	\$107,000	—	\$11,000	46	\$4,899,953	\$4,782,339	+ \$117,614	Mt. Db.	30	10	22	Nil	
Buenos Ayres Gt. Southern	5,085	9.6.34	187,000	—	5,000	49	9,858,000	10,033,000	— 175,000	Ord. Stk.	44½	21½	22½	Nil	
Buenos Ayres Western ..	1,926	9.6.34	83,000	—	7,000	49	3,337,000	3,349,000	— 12,000	"	154½	15½	18	Nil	
Central Argentine ..	3,700	9.6.34	209,000	+	41,000	49	8,330,000	8,831,000	— 501,000	"	28½	15	18	Nil	
Do.	—	—	—	—	—	—	—	—	—	Dfd.	18	10	10	Nil	
Cent. Uruguay of M. Video	273	9.6.34	14,854	—	14	49	802,611	742,525	+ 60,086	Ord. Stk.	20	8	14	Nil	
Do. Eastern Extn. ..	311	9.6.34	3,265	+	125	49	166,868	160,414	+ 6,454	—	—	—	—	—	
Do. Northern Extn. ..	185	9.6.34	1,896	—	222	49	94,174	96,654	— 2,480	—	—	—	—	—	
Do. Western Extn. ..	211	9.6.34	1,113	+	48	49	75,609	64,128	+ 11,481	—	—	—	—	—	
Cordoba Central	1,218	9.6.34	46,000	+	6,000	49	2,002,000	1,953,000	+ 49,000	Ord. Inc.	94	21½	5	Nil	
Costa Rica	188	Apr., 1934	14,704	—	950	43	181,164	194,290	— 13,126	Stk.	29	20	26½	7½	
Dorada	70	May, 1934	10,300	+	1,500	21	51,400	35,200	+ 16,200	1 Mt. Db.	76½	68½	95½	6½	
Entre Rios	810	9.6.34	16,200	+	2,000	49	754,700	729,600	+ 25,100	Ord. Stk.	26½	9	16½	Nil	
Great Western of Brazil ..	1,082	9.6.34	6,300	—	400	23	190,700	257,100	— 66,400	Ord. Sh.	23½	12	5½	Nil	
International of Cl. Amer.	794	Apr., 1934	\$468,465	+	\$46,901	17	\$1,391,550	\$1,778,384	+ \$213,166	—	—	—	—	—	
Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	—	1st Pref.	12	116	12	Nil	
La Guaira & Caracas ..	223½	May, 1934	3,795	—	1,485	21	19,040	32,520	— 13,480	Stk.	16	10	8½	Nil	
Leopoldina	1,918	9.6.34	17,872	—	3,113	23	486,545	525,898	— 39,353	Ord. Stk.	20½	10	10½	Nil	
Mexican	483	7.6.34	\$247,400	+	\$75,300	22	\$5,192,900	\$4,168,600	+ \$1,024,300	—	—	—	—	—	
Midland of Uruguay ..	319	May, 1934	8,601	—	158	47	103,709	94,125	+ 9,584	Ord. Stk.	3	12	2½	Nil	
Nitrate	401	31.5.34	8,751	+	5,693	21	124,139	45,394	+ 78,745	Ord. Sh.	78½	49½	27½	Nil	
Paraguay Central	274	9.6.34	4,860	—	610	49	171,940	145,120	+ 26,820	Pr. Li. Stk.	72	116	72	8½	
Peruvian Corporation ..	1,059	May, 1934	62,512	+	14,349	47	619,408	577,473	+ 41,935	Pref.	15½	5	11	Nil	
Salvador	100	2.6.34	1,288	—	192	49	73,405	133,820	— 60,415	Pr. Li. Db.	70	66½	70	7½	
San Paulo	153½	3.6.34	35,178	—	4,103	22	668,204	666,514	+ 1,690	Ord. Stk.	102	68	80	5	
Taitai	164	May, 1934	2,710	+	435	48	63,645	38,450	+ 25,195	Ord. Sh.	15½	5½	11½	5½	
United of Havana ..	1,365	9.6.34	15,803	—	272	49	938,023	934,368	+ 3,655	Ord. Stk.	8	2	4½	Nil	
Uruguay Northern ..	73	May, 1934	1,048	+	144	47	12,555	15,497	— 2,942	Deb. Stk.	6	3½	5	Nil	
Canada.															
Canadian National ..	23,748	7.6.34	608,465	+	47,634	22	13,724,725	11,350,600	+ 2,374,124	—	—	—	—	—	
Canadian Northern ..	—	—	—	—	—	—	—	—	—	4 p.c.	Perp. Dbs.	60½	38	67½	5½
Grand Trunk	—	—	—	—	—	—	—	—	—	Ord. Stk.	99½	85	101	3½	
Canadian Pacific	17,018	7.6.34	426,200	+	16,200	22	9,866,400	8,967,000	+ 1,399,400	Ord. Gar.	22½	11	15	Nil	
India.															
Assam Bengal	1,329	12.5.34	26,520	+	2,756	6	167,887	128,399	+ 39,488	Ord. Stk.	79	70	77½	3½	
Barsi Light	202	19.5.34	3,262	—	52	7	22,650	22,470	+ 180	Ord. Sh.	101½	70	100½	8	
Bengal & North Western	2,113	19.5.34	55,507	—	1,023	7	375,374	375,560	— 186	Ord. Stk.	292	240	281	5½	
Bengal Doars & Extension	161	19.5.34	2,055	—	360	7	15,373	15,506	— 133	"	127	119	125	5½	
Bengal-Nagpur	3,269	12.5.34	125,775	+	20,896	6	712,125	631,077	+ 81,048	"	97½	83½	100½	3½	
Bombay, Baroda & Cl. India	3,089	2.6.34	175,050	+	8,925	9	1,553,850	1,508,025	+ 45,825	"	112	107	111½	5½	
Madras & South'n Mahratta	3,230	12.5.34	131,700	+	14,314	6	721,800	670,433	+ 51,367	"	127	114½	124½	7½	
Rohilkund & Kumaon ..	572	19.5.34	10,578	+	1,149	7	81,683	76,673	+ 5,010	"	260	225	253	5½	
South India	2,526	12.5.34	83,042	+	203	6	485,491	470,996	+ 14,495	"	119½	112	115½	6½	
Various.															
Beira-Umtali	204	Mar., 1934	49,507	+	6,256	26	290,974	234,727	+ 56,247	—	—	—	—	—	
Bilbao River & Cantabrian	15	Apr., 1934	1,787	—	232	17	7,749	5,087	+ 2,662	—	—	—	—	—	
Egyptian Delta	621	20.5.34	4,864	—	80	7	25,756	25,867	— 111	Pr. Sh.	131½	15½	2	Nil	
Great Southern of Spain ..	104	2.6.34	2,244	—	290	22	49,027	46,870	+ 2,157	Inc. Deb.	4	3	5½	Nil	
Kenya & Uganda	1,625	Mar., 1934	240,520	+	21,064	12	638,137	606,192	+ 31,945	—	—	—	—	—	
Manila	—	—	—	—	—	—	—	—	—	R. Deb.	53	33½	42½	8½	
Mashonaland	913	Mar., 1934	88,871	+	21,868	26	530,604	362,535	+ 168,069	1 Mt. Db.	91½	42	83	5½	
Midland of W. Australia ..	277	Apr., 1934	11,826	—	607	38	134,041	130,844	+ 3,197	Inc. Deb.	89	70	97½	4½	
Nigerian	1,903	28.4.34	25,007	—	4,670	4	109,530	97,159	+ 12,371	—	—	—	—	—	
Rhodesia	1,538	Mar., 1934	154,590	+	28,180	26	909,844	658,388	+ 251,456	4 p.c. Db.	98½	80½	101	3½	
South African	13,180	19.5.34	485,410	+	78,079	7	3,326,265	2,805,057	+ 521,208	—	—	—	—	—	
Victorian	6,172	Mar., 1934	792,186	—	58,731	38	6,641,758	7,026,294	— 384,536	—	—	—	—	—	
Zafra & Huevla	112	Apr., 1934	9,965	—	97	17	44,640	41,459	+ 3,181	—	—	—	—	—	

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1%.
 † Receipts are calculated @ 1s. 6d. to the rupee. ‡ Average rate of exchange for the week:—This year 311½. Last year 417½. § ex dividend.

